

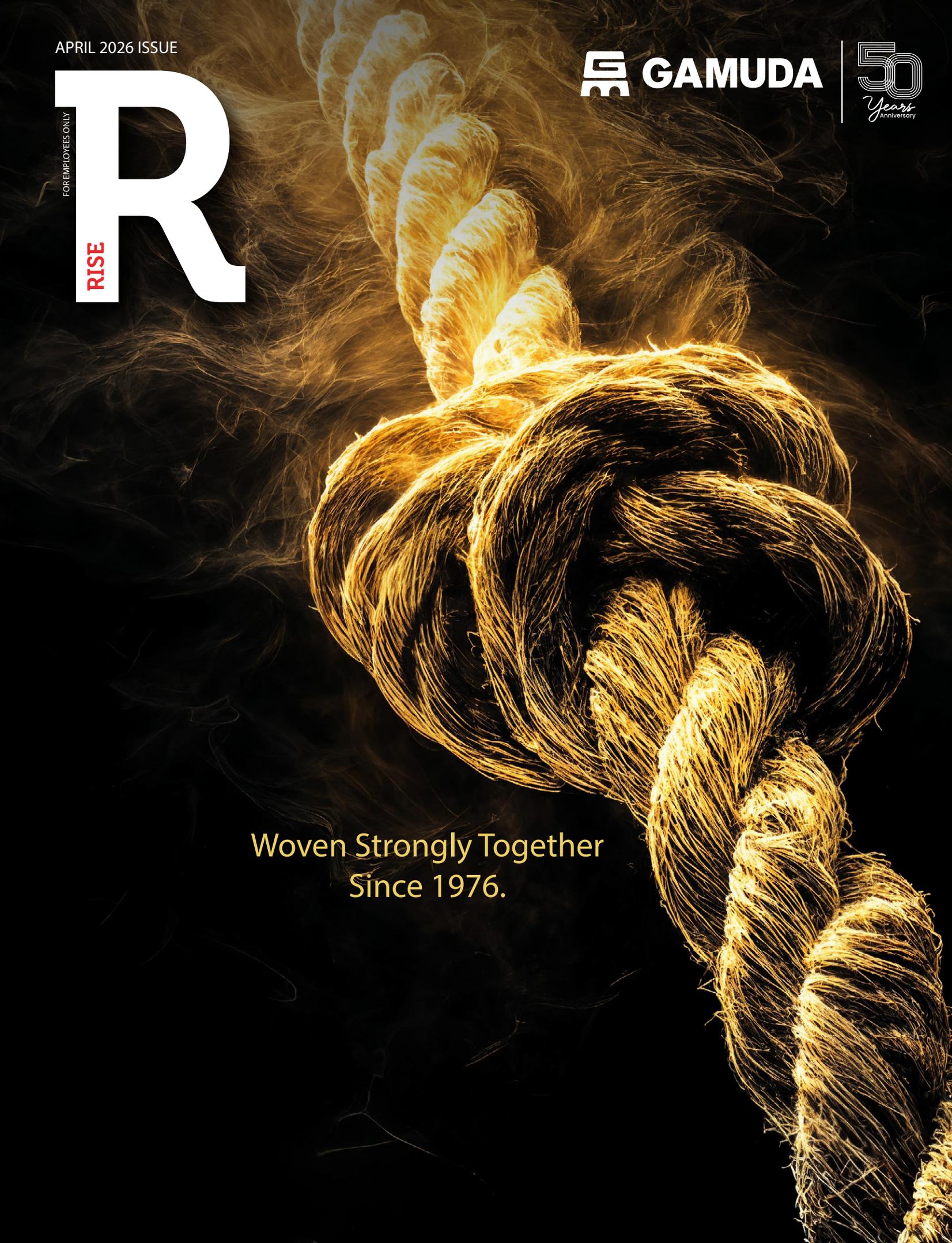
APRIL 2026 ISSUE

FOR EMPLOYEES ONLY
RISE
R

 **GAMUDA**

50
Years
Anniversary

Woven Strongly Together
Since 1976.





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On the cover

The rope symbolises the "Golden Thread" that continues to bind Gamuda for the last 50 years. Each strand represents the people, projects and milestones that together create enduring strength. The knot marks a defining moment, celebrating resilience, unity and shared achievements. "Woven Strongly Together Since 1976" reflects a legacy built not by one, but by many — interconnected, evolving and moving forward as one.



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FEATURED CONTRIBUTORS

MD FARABI YUSSOFF BIN MD YUSSOFF

He joined Gamuda Technologies in 2025 as Head of Smart Infrastructure. With a background in urban planning, he is passionate about smart cities. During his spare time, he enjoys gravel cycling and exploring ideas for future cities.



HUANG CHUN HAO

With six years on Gamuda Taiwan's Taipei Port Seawall project, he is driven by solving complex challenges. He actively explores how artificial intelligence can be integrated into everyday workflows to enhance productivity and decision-making. He enjoys studying behavioural psychology and value investing. He finds that these interests sharpen his thinking and broaden his mental models, guided by his belief: *all human accomplishments stem from creative imagination.*

REBECCA TOH JIA HUI

With three and a half years at Gamuda Land's Business Development Unit, she is passionate about connecting the right people to create places where communities thrive. She is a creative soul who loves art in all its forms, pilates, puzzles and her cat.



IAN MOFFAT

With experience spanning across road, rail and airport projects in Australia, New Zealand and the United Kingdom, he brings a diverse perspective to infrastructure delivery. He is particularly passionate about helping grow Gamuda Australia presence and demonstrating the team's capability to deliver quality projects collaboratively and on time. He enjoys cycling, whether on road, gravel or mountain trails and takes every opportunity to go snow skiing.

Editorial Team

Advisor

Justin Chin Jing Ho
Gim Teck Yew

Content Directors

Dr Bhavani Krishna Iyer
Ong Jee Lian

Content Creators

Faslika Das
Kaarthiega Anantan
Syed Zulhilm bin Syed Zulkarnain
Sophia William

Integrated Designers

Rafy Hamid
Tan Yee Chung

Contributors

Anne-Marie Sears
Chow Kaiyi
Deshika Nair A/P Sangaran Nair
Elisabeth Negus
Emily binti Mohd Ismail
Erin Connors
Faris Amani bin Mohammad Ali
Goh Kim Meng
Harleeda Mohd Azhar
Harun Al-Fayed bin Hassan
Huang Chun Hao
Ian Moffat
Jarred Hardman
Jason Moran
Jeremy Leong Zhung Zen
Joshua Kong
Looi Sue-Chern
Md Farabi Yusoff bin Md Yusoff
Muhamad Khairie bin Othman
Muhammad Fawzal Adib bin Azuar
Nikolai Morozow
Nur Husna binti Nasrudin
Paul Hawthorne
Puganesan Thiruselvan
Ramana Ramakrishna
Rebecca Toh Jia Hui
Rizal bin Mohamad Suhaimi
Siti Ezyana binti Syed Jaafar
Tom Perkin
Winson Low Yao Qian
Wong Chee Keong

Gamuda Berhad's quarterly internal newsletter, RISE, compiles content from Viva Engage's weekly posts and showcases events from our regional offices. The upcoming issue will be released in July 2026. You can pick up a print copy at the Group Corporate Communications and Sustainability (GCCS) Department on Level 13, Menara Gamuda, or read the online edition at rise.gamuda.com

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BEST OF 50

THE FOUNDATION OF GRIT (1976 – 1990)

HUMBLE BEGINNINGS, BOLD
INGENUITY AND EARNING OUR
STRIPES IN THE JUNGLE.

1976 THE HUDDLE IN IPOH

Gamuda was born on 6 October 1976. Our journey began in a single rented room at 27, Jalan Gopeng, Ipoh. Here, in the modest space, plans were debated and the future was charted. We started as a sub-contractor, kicking with one leg and learning to fly, driven by sheer determination and a refusal to fail.



1976 CONQUERING THE JUNGLE

Our first test - the Pahang Tenggara Road Project (commonly known as Bahau-Keratong Highway), saw us carving 26 miles of road and bridges through the dense, unforgiving jungles of Pahang. While others saw a logistical nightmare, we saw our starting line.

1978 WISDOM FROM LUMUT

We secured the Lumut Naval Harbour, where we combined modern engineering with traditional wisdom. We utilised the Chinese lunar calendar to predict tides, ensuring our machinery was never submerged. We delivered the project ahead of schedule.



1985 THE GOLD STANDARD

Gamuda is awarded the Class A Contractor Licence. We went on to bid on the nation's largest projects on our own terms.

1986 THE JOB NOBODY WANTED

During the recession, other contractors refused the Kuala Jengai to Pasir Raja project due to its remote jungle location. We didn't. Dato' Lin Yun Ling borrowed a 4x4, drove into the jungle to survey the site, and we took the job. It became the turning point that proved our resilience.

1987 THE BIG LEAGUE

We secured the Federal Route 1 (Simpang Pulai to Pos Slim project). A massive undertaking connecting West Coast to Cameron Highlands, setting the stage for mega-projects to follow.



1989 A PERMANENT HOME

We planted our flag in Damansara Jaya, acquiring Lot 55 as our official Headquarters - the nerve centre of our expansion.

THE ERA OF EXPANSION (1991 – 2000)

FROM CONTRACTOR TO
CONCESSIONAIRE, PRIVATISATION
AND TOWNSHIP BUILDER.

1992 GOING PUBLIC

Gamuda listed on the main board of Kuala Lumpur Stock Exchange (KLSE) on 10 August. A pivotal moment that signaled our readiness to scale.

1994 THE PRIVATISATION

We secured the Shah Alam Expressway (SAE or also known as KESAS) through competitive bidding, marking our first privatised concession and setting a new benchmark for urban connectivity.



1995
**BUILDING COMMUNITIES,
NOT JUST HOUSES**

Gamuda Land made its debut with Kota Kemuning. More than a project, it was our first integrated township development.



1996
THE URBAN LIFELINE

Construction began on Lebuhraya Damansara-Puchong (LDP). As the first intra-urban highway, it radically transformed the Klang Valley's economy and opened up many thriving urban centres like Cyberjaya, Serdang, Puchong and Petaling Jaya.



1997
BUILDING THE BUILDER

Establishment of the Gamuda Plant Operator School (GPOS). A RM20 million non-profit initiative on 10 acres in Kota Kemuning, which currently more than 45,000 trainees to date, including subcontractors are certified graduates.

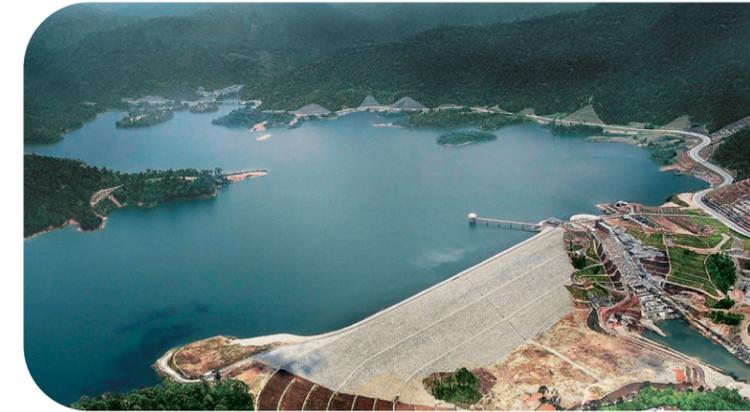
1999
BREAKING NEW GROUND

Our first foray into tunnelling. The Western Kuala Lumpur Traffic Dispersal Scheme (SPRINT Highway) saw us drilling and blasting through the granite of Kiara Hills.



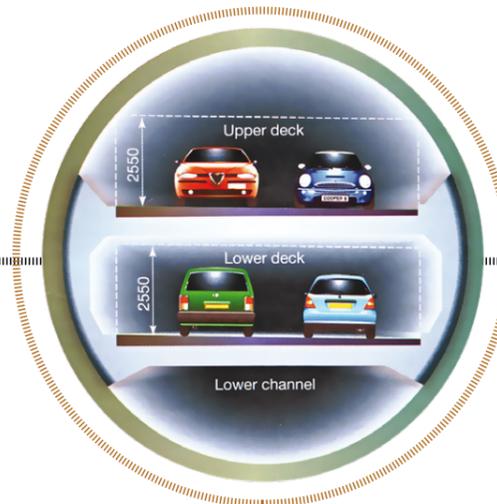
2000
SECURING THE NATION'S WATER

We diversified our engineering portfolio by securing Phase 3 of the Sungai Selangor Water Supply Scheme (SSP3) followed by the Yen So Sewage Treatment Plant in Vietnam, proving our capabilities in water infrastructure. More than two decades later in 2022, we returned to our roots with the Sungai Rasau Water Supply Scheme in Selangor.



2001
BEYOND BORDERS

Our international journey began in India, with the Panagarh-Palsit Highway and Durgapur Expressways in West Bengal. More than just a project, it was a statement of proof that Malaysian engineering could perform, compete and deliver on foreign soil.



INNOVATION AND GLOBAL REACH
(2001 – 2016)

**TAKING MALAYSIAN EXPERTISE TO
THE WORLD AND REVOLUTIONISING
TECHNOLOGY.**

2003
ENGINEERING A WORLD FIRST

The Stormwater Management and Road Tunnel (SMART) is the world's first dual-purpose tunnel for stormwater diversion and traffic flow. The project earned global recognition, including the UN-Habitat Scroll of Honour and a place in CNN's top 10 tunnels in the world.



2005
GATEWAY TO THE GULF

Hamad International Airport in Qatar marked our first airport project and entry into the Gulf States. Today, the airport continues to expand, increasing its capacity to serve over 65 million passengers annually.



2006
BUILDING CONNECTIONS
IN BAHRAIN

The Sitra Causeway Bridges were a masterclass in logistics and resilience. Built amidst Arabian Gulf's harsh marine environment and scorching heat, while keeping the original bridge open to live traffic.



2007
FIRST STEPS IN HANOI

Gamuda City in Vietnam marked Gamuda Land's first international township venture. The journey began with the development of the Yen So Sewage Treatment Plant, a critical infrastructure project that laid the groundwork for what would become the award-winning Yen So Park and the broader Gamuda City township in Hanoi.

2008
OUR FIRST INTER-STATE
RAIL PROJECT

Gamuda delivered the 329 km Electrified Double Track Project (EDTP) linking Perak, Kedah, Penang and Perlis. Designed for electric trains travelling at up to 160 kph, the upgrade reduced travel time by two-thirds and now carries over 20 million passengers annually.



2011
TRANSFORMING URBAN MOBILITY

The MRT Kajang Line changed the rhythm of the Klang Valley. As the project delivery partner and underground tunnelling contractor, we pioneered a new delivery model for the nation's first urban metro system. Our largest and most complex public infrastructure undertaking at the time was the integration of urban transport.



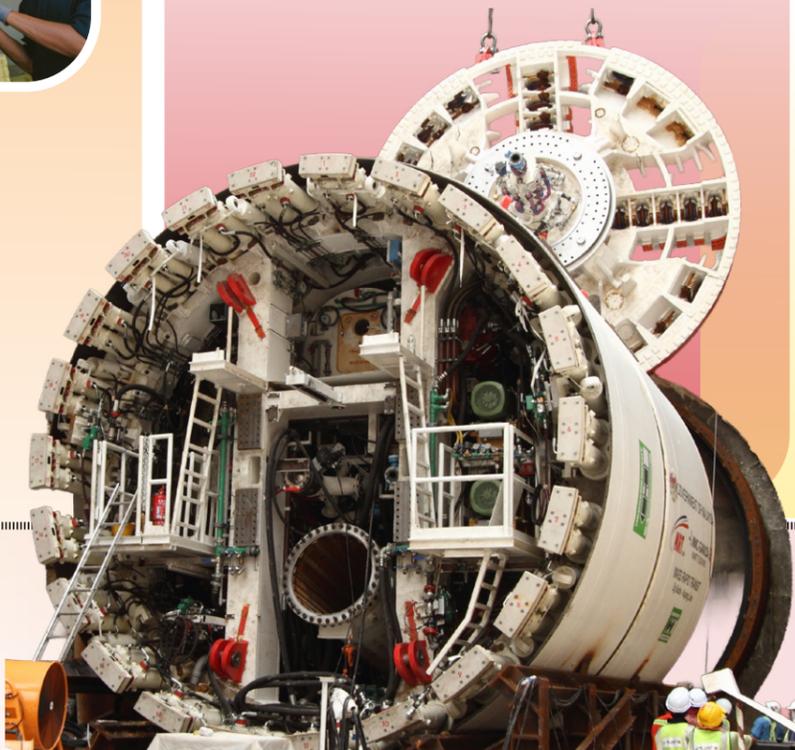
2013
INNOVATION THAT CHANGED
TUNNELLING

The world's first variable density tunnel boring machine (VD TBM) was launched for the MRT Kajang Line. Designed to conquer the unpredictable karstic limestone of Kuala Lumpur, it set a new global standard for tunnelling in extreme geological conditions.



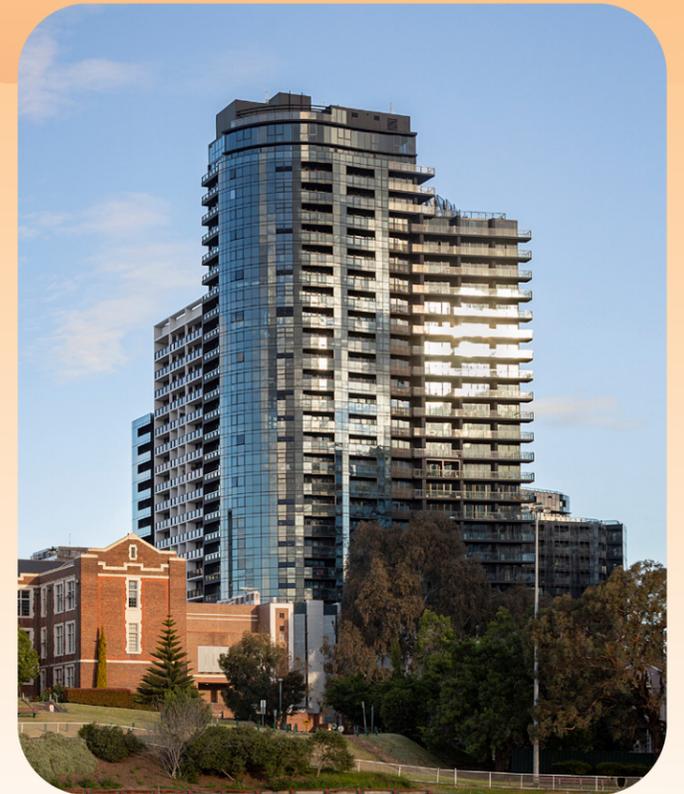
2011
TUNNELLING THE FUTURE

We established the Tunnelling Training Academy (TTA), the world's first institution dedicated to tunnel boring machine (TBM) technology. It was an investment in people, ensuring knowledge transfer, safety and long-term capability building of the local workforce.



2015
SCALING URBAN IMPACT

The success of MRT Kajang Line paved the way for MRT Putrajaya Line. Combined, both lines comprising above-ground and underground extend over 100 km, connecting and serving a catchment of over 3.2 million people.



2015
EXPANDING DOWN UNDER

Gamuda Land entered the Australian property market with 661 Chapel St in Melbourne, paving the way for two subsequent boutique developments — The Canopy on Normanby and Fareham.



2015
SAFETY AS A SYSTEM

The KVMRT Safety Training Centre was established to institutionalise safety standards. Purpose-built for high-risk works and electrified rail systems, it shifted the culture from compliance to competency, making safety a core discipline, never an afterthought for over 50,000 contractors and supply chain.

2016
LIFESTYLE AS DESIGN

GEM Residences in Toa Payoh introduced Singapore's first condominium designed around a country club lifestyle concept, setting a new benchmark for high-density urban living.



2016
REINVENTING DIGITAL CONSTRUCTION

Our Next-Generation Digital Industrialised Building System (IBS) is Malaysia's first Digital IBS plant. In 2019, we expanded with a second IBS factory in Banting, building residential and commercial lots, including data centres.



2016
PHILANTHROPY IN ACTION

Yayasan Gamuda brought together our social impact efforts, from Gamuda Scholarship to Enabling Academy and Gamuda Inspiration Award — all with the aim of amplifying our collective impact.

2018
THE AUTONOMOUS LEAP

We unveiled the world's first autonomous tunnel boring machine (TBM) for the MRT Putrajaya Line, a major evolution from the VD TBM. Developed in-house with customised AI algorithms, our autonomous TBM was first deployed in Australia and Singapore, scaling our innovation internationally.



2021
POWERING THE FUTURE

Our entry into the renewable energy (RE) market with the NEDA39 Solar Farm in Pekan, and later secured the Ulu Padas Hydroelectric Dam in 2023, marking a decisive step into RE generation.



2022
NEW CHAPTER IN AUSTRALIA

We secured the Sydney Metro West – Western Tunnelling Package, marking our first major infrastructure project in Australia. Since then, we have grown our presence to over 20 projects across the country, supported by a team of more than 2,000 employees.



A SUSTAINABLE FUTURE
(2016 – PRESENT)
ARTIFICIAL INTELLIGENCE, EMERGING INFRASTRUCTURE AND GREEN ENERGY.

2021
COMMITTED FOR GOOD

Gamuda Green Plan 2030 was launched, establishing measurable targets across ESG, and becoming the leading engineering and construction company to be Science Based Targets initiative (SBTi)-validated.



2022
FROM HOME TO HIGH STREETS

West Hampstead Central marked Gamuda Land's first foothold in the United Kingdom, paving the way for our landmark 75 London Wall and three purpose-built student accommodations (PBSAs) comprising over 1,200 student beds.



2023
CREATING DESTINATIONS

The opening of SplashMania Waterpark at Gamuda Cove reflects our vision of creating joyful developments, with more to come including the inaugural ASAI Gamuda Cove by Dusit International in 2026. Alongside this, Gamuda Luge Gardens is home to Malaysia's first-ever luge park and only the second Skyline Luge location in Southeast Asia, following Singapore, has welcomed over 2.3 million rides since its launch.

2023
REWRITING PENANG'S FUTURE

Reclamation works officially began on Penang's Silicon Island, a 2,300-acre development, poised to become a model of sustainable living and a low carbon economy.



2024
MOST HONOURED COMPANY

Gamuda was ranked the Top 3 Overall Best Company in Industrials (including Infrastructure) in the 2024 Asia Pacific (ex-Japan) Executive Team by Institutional Investor Research (II Research), reflecting 5,894 voters comprising investors, portfolio managers and analysts.

2024
THE EDGE BILLION RINGGIT CLUB:



We won the coveted Company of the Year award, cementing our position as a top-performing Malaysian firm in the country.

2024
SECURE ON CLOUD

Our partnership with Dagang NeXchange Berhad brought secure, air-gapped cloud systems to critical public and private sectors, ensuring sensitive data remains sovereign and secure.

2025
GREENER GRID

Gamuda Australia and DT Infrastructure secured multiple renewable energy projects across Australia, totalling seven developments, marking a significant step towards building a 3 GW clean energy pipeline.



2024
AI – THE WAY TO GO

The Gamuda AI Academy was launched, the first of its kind in Malaysia's construction industry, signalling a new era of building AI talent and accelerating digital adoption across sectors. Its success led to a second launch in Sabah in 2025. Developed in collaboration with Google Cloud, the Academy leverages advanced AI platform and full stack AI development to build tomorrow's tech jobs.



2024
FIRST SYSTEM WORKS IN AUSTRALIA

DT Infrastructure, acquired by Gamuda in 2023, secured the METRONET High-Capacity Signalling Project in Perth. It is the world's largest signalling project by route length, reinforcing our capability in complex rail infrastructure.



2025 PENANG'S FIRST LRT

We were awarded the Penang Mutiara Line, bringing our rail expertise to improve the Pearl of the Orient's mobility after the Electrified Double Track Project.



2025 SCALING DATA CENTRE DELIVERY

Established as a key player in Malaysia's data centre construction boom, delivering over RM5.8 billion of data centre and hyperscale facilities for leading global and local developers.



2025 INTERSTATE WATER SECURITY

We returned to our home state with Northern Perak Water Supply Scheme (NPWSS) project, marking Gamuda's re-entry into large-scale water infrastructure.



2025 TWO DECADES IN TAIWAN AND THRIVING

From our pioneering entry into Taiwan's rail market with the Kaohsiung MRT Orange Line in 2002 to securing the Kaohsiung Port Intercontinental LNG Terminal and an underground transmission line project in 2025, we have built a long-standing presence with nine projects across the country.



2025 WORLD'S BEST EMPLOYERS 2025

Ranked within the top 400 globally by Forbes, reflecting our commitment to fostering an inclusive, progressive and empowering workplace for all our people.



2026 DIGITAL UPSKILLING IN SARAWAK

Gamuda Technologies partnered with the Centre for Technology Excellence Sarawak (CENTEXS) to establish the State's first Digital Construction and AI & Cloud for Construction training programmes in Kuching.

GAMUDA

50
Years
Anniversary

2026 THE PEOPLE BEHIND THE PROGRESS

As we turn 50, our group-wide workforce stands at more than 7,000 strong. From engineers and builders to innovators and changemakers, it is their passion and resilience that have shaped our past and continue to define our future.



FLOW FORWARD WITH SUNGAI RASAU WATER SUPPLY SCHEME

With the projected water reserve margin in the Klang district of Selangor having fallen to just 1.9 percent in 2024, well below the recommended buffer of around 15 to 20 percent needed to absorb supply disruptions, safeguarding future supply has become an urgent priority.

Tucked between the bustling routes of ELITE Highway, SKVE and Jalan Seri Cheeding, the Sungai Rasau Water Supply Scheme is a critical response to this challenge. It sets to strengthen the state's resilience against droughts, pollution events and plant shutdowns while securing long-term water security for the Klang district.

Designed to complement the existing water supply system, Sungai Rasau Water Supply Scheme introduces another major raw water source, reducing reliance on the existing water supply scheme.

Upon completion in two phases, Sungai Rasau Water Supply Scheme will produce 1,400 MLD of treated water, making it the second largest water supply scheme in Malaysia after Sungai Langkat 2 Water Supply Scheme. At full capacity, the scheme can serve up to one million account holders comprising households and businesses, equivalent to roughly seven million people. Stage 1, delivering 700 MLD, is expected to serve up to 467,000 account holders across Klang, Banting, Kuala Langkat and Petaling Jaya.

As of March 2026, Stage 1 construction has reached approximately 60 percent completion. The project spans three key components:

1. The 700 MLD water treatment plant in Seri Cheeding, Kuala Langkat, is divided into two equal streams (Stream A and Stream B), each with the capacity of 350 MLD, allowing for parallel treatment processes and phased commissioning of plant output.
2. The raw water pipeline of over 8 km crossing the ELITE Highway and aligned along the Kuala Langkat Forest Reserve adjacent to Bandar Saujana Putra residential areas.
3. The Intake and Raw Water Pumping station at an existing old mining pond in Taman Mas, Puchong.



Harun (sitting) plays a key role in keeping the project on track. Through sustained engagement and coordination, the team navigated complex design submissions, permits and technical clearances. Notably, Technical Design Approvals and Permits to Work for both the ELITE and SKVE bridges were secured on schedule, allowing site works to proceed smoothly.

The Water Treatment Plant's Stream A is progressing as planned, while Stream B is closely following behind. Key achievements include completing many of the treatment process tanks and chemical buildings for Stream A and installing the twin raw water pipelines serving both streams.

"The project's most dramatic milestone took place in July 2025 with the overhead beam launching for a dedicated raw water pipe bridge across the ELITE Highway, one of the Klang Valley's busiest expressways and a primary gateway to Kuala Lumpur International Airport (KLIA)," said Ir. Harun Al-Fayed, who heads Approval and Stakeholder Management for the project.

The bridge spans approximately 90 m in length and 35 m in width, carrying four raw water pipelines from the intake to the treatment plant under the Stage 1 works, and two treated-water pipelines for onward distribution under the Stage 2 works.

"The operation was granted only a seven-day window, with work permitted between 10:00 P.M. and 5:00 A.M. each night. Within these narrow hours, traffic had to be diverted, cranes mobilised, beams lifted and installed and the highway reopened before dawn." – Harun



Any overrun would result in prolonged closures and severe congestion on a highway carrying around 120,000 vehicles daily. Through meticulous planning and coordination, the team completed the beam launching in six nights, one day ahead of schedule, and achieved the final stage of raw water pipeline works.

Unlike conventional underground pipe-jacking, the Sungai Rasau Water Supply Scheme required six large pipelines ranging from 2.1 m to 2.4 m in diameter to cross the six-lane highway. Ground conditions and long-term maintenance needs made an above-ground pipe bridge the safer, more sustainable option.



"It was a relief when the last beam was lifted in place. This bridge is the critical link between the intake and the treatment plant. Without it, the entire system cannot function," said Harun.

Earlier in the project, a challenging encounter at the intake excavation prompted a comprehensive review of construction methods and controls. Following this, additional structural reinforcements, enhanced early warning systems, stricter monitoring regimes and clearer work protocols were implemented across the site.

Head of Operations Wong Chee Keong said the experience strengthened the team's discipline and preparedness. "Beyond reinforcing safety, we reviewed the entire construction approach at the intake and strengthened the earth retaining system, monitoring instruments and work sequencing. Today, the site operates under tighter controls and clearer escalation procedures, allowing us to move forward with greater confidence," he said.

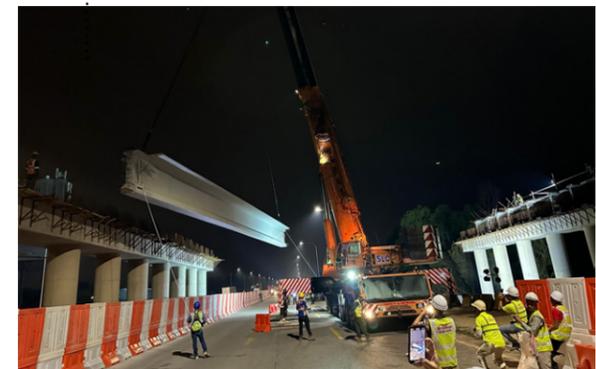
Owned by Air Selangor, the state water supply utility responsible for Selangor's water supply infrastructure, the project involves coordination with multiple authorities, including Selangor State Agencies, Kuala Langkat and Sepang Public Works Departments and Municipal Councils, PLUS Malaysia Berhad and the Malaysian Highway Authority. The scale and complexity of the project demand strong engineering discipline and sustained stakeholder collaboration.

In mid-November 2025, senior leaders from Air Selangor, including Chief Executive Officer Adam Saffian Ghazali, visited the site alongside Gamuda Engineering Deputy Managing Director Julian Yeap Kheang Teik and Project Director Ir Khor Thiam Chay to observe the progress and better understand the project's intricacies.

As construction advances toward its mid-2027 completion, the next phase will focus on installing the Mechanical and Electrical (M&E) and instrumentation systems, followed by comprehensive testing, commissioning and final handover.

Once operational, the Sungai Rasau Water Supply Scheme will provide a reliable supply for Selangor, Malaysia's most industrialised state and its largest contributor to national Gross Domestic Product (GDP), ensuring communities and industries can continue to grow without disruption.

A 142-tonne, 65-metre beam was successfully launched over the busy ELITE Highway in a high-risk midnight operation involving two heavy-lifting cranes and over 50 personnel. With contra-flow traffic in place and works executed above live traffic, the launch marked one of the project's most complex structural milestones.



DEEPENING OUR ROOTS IN SINGAPORE

Gamuda Land has secured the joint-venture bid for the Chencharu Close mixed-use development in Yishun, near Khatib MRT in North Singapore, a significant milestone that deepens our presence in one of Asia's most stable and competitive property markets.

For Gamuda, this project is a meaningful contributor to our long-term growth. With a projected Gross Development Value (GDV) of RM6.6 billion and a 50 percent equity stake, Chencharu Close will support the Group sales and earnings from FY27 onward, strengthening our presence in Singapore. It also aligns strongly with our Quick Turnaround Project (QTP) strategy, which focuses on well-located urban developments with strong, immediate market appeal.

More than a project win, Chencharu Close also represents our steadfast presence in Singapore, culminating years of groundwork, collaboration and trust that Gamuda has built across both property and infrastructure in the Lion City.



Gim Teck Yew, Gamuda Land's Chief Executive Officer reflected on this achievement.

“This win is a deliberate and strategic move to strengthen our regional portfolio. It also reflects our confidence in Singapore’s resilient property landscape and presents a first-mover advantage in the island republic’s north as the Government advances its plans to rejuvenate the region. It is a rare opportunity to deliver a development anchored by an integrated bus station, which enables us to leverage Gamuda’s combined strengths in transport infrastructure and property development.”

TRUSTED TRACK RECORD

Our success at Chencharu Close builds on nearly a decade of proven delivery in Singapore. Since 2015, Gamuda has established a strong presence through both infrastructure and property projects, a dual capability that few developers possess.

Our fully sold residential projects, GEM Residences and OLÁ, collectively generated RM4.4 billion in GDV, demonstrating our ability to understand and meet the demands of the Singapore market. At the same time, Gamuda continues to contribute to some of the nation’s most important infrastructure projects, including MRT stations and tunnels and the largest multi-storey bus depot in the country.



This image is the architect's perspective for illustration only. This illustration does not constitute or represent the final product or the development and is subject to changes at any point in time.



As Chow Kaiyi, Gamuda Land's Head of Singapore, explained:

“Chencharu Close is more than a mixed-use development. It is an opportunity for us to demonstrate what thoughtful, people-centred placemaking can achieve in a mature environment. By bringing together homes, commerce and seamless mobility in one integrated environment, we aim to create a neighbourhood that supports meaningful everyday living.”

DESIGNING A GREENER FUTURE

The development is targeting the Building and Construction Authority (BCA) Green Mark Platinum Super Low Energy (SLE) certification, one of Singapore's highest sustainability standards, awarded to buildings that achieve energy savings by at least 60 percent compared to 2005 baseline levels. If achieved, the certification serves as proof that Chencharu Close is an energy-efficient, low-carbon home designed to support a sustainable lifestyle. It would also contribute to Singapore's Green Plan 2030, which aims for 80 percent of new buildings (by Gross Floor Area) to be Super Low Energy buildings from 2030.

In dense tropical cities such as Singapore, buildings consume significant energy for cooling. SLE developments focus on reducing consumption while enhancing indoor comfort. A “passive-first” approach optimises building orientation, natural ventilation and high-performance facades to limit heat gain. These strategies are complemented by energy-efficient active systems such as smart air-conditioning, sensors and LED lighting. Together, these features create a cooler, healthier indoor environment and lower utility costs for residents.

For our staff across the Group, this project represents a collective achievement, an example of how our shared values, technical depth and regional ambition continue to open doors in global markets.

Chencharu Close under Gamuda Land will deliver up to 875 private condominium units as part of the 10,000 homes within the precinct.

BUILDING THE NEXT NEIGHBOURHOOD

Chencharu Close, as many other developments in Singapore, is part of the plan to provide better housing and quality living environment for all, especially for current and future generations to come and to support an ageing population.

Featuring up to 875 homes, 12,600 sqm of commercial space and essential amenities, including a bus interchange and hawker centre, these amenities are a nod to Singapore's unique culture and urban way of life.

A key emphasis is on making neighbourhoods easier to live in day-to-day. Walkable streets, accessible public transport, shared green spaces and community facilities are planned to encourage interaction and strengthen community ties. At the same time, care is taken to preserve local character by integrating heritage elements into new developments.



The multidisciplinary team from across Gamuda Land's departments overseeing Chencharu Close. From left: Amanda Sim (Manager, Business Development), Khairunnisa' Binti Zulkifli (Assistant Manager, Market Intelligence), Caryn Goh (Senior Manager, Market Intelligence), Diana Sulamazra Binti Abdul Rahman (General Counsel), Kennard Lam (Executive, Market Intelligence), Jonathan Ding (Assistant General Manager, Business Development), Yap Luh San (Senior Manager, Investment Services), Soo Boo Keong (Assistant General Manager, Finance) and Maggie See (Assistant Manager, Investment Services).

HOLDING THE LINE AGAINST THE SEA

Inside the world of massive marine engineering, few projects are as daunting as the Taipei Port Seawall. Stretching 4,014 m, it stands between one of Taiwan's most important ports and the relentless forces of the East China Sea, where open-ocean swells and seasonal storms push the limits of engineering resilience.

To give our RISE readers an insider look at this massive shield, we sat down with Huang Chun Hao, Section Head for Operation and Construction. With nearly six years at Gamuda dedicated exclusively to this project, Huang has seen the seawall evolve from a digital blueprint in 2020 into a reality that is over 91 percent complete.

MORE THAN JUST A WALL

To the casual onlookers, it looks like any ordinary concrete. To Huang and his team, the seawall solves three of Northern Taiwan's most critical infrastructure challenges at once:

- Dredged Silt Containment: Creating long-term storage for port silt.
- Soil Management: Solving the shortage of construction soil disposal sites.
- Land Reclamation: Using these resources to create new land, allowing the port to expand.

"The primary job of the seawall is protection. Without it, giant waves would crash directly into the port," Huang explains.

"It would destroy our planned windbreak forests and ecological tide pools, making it impossible for ships to berth safely."

FACING THE ELEMENTS

What makes Taipei Port especially challenging is its climate. Taipei Port faces the full brunt of the Northeast Monsoon from October through April, where persistent high-pressure systems push sustained gale-force winds, and winds over 13.8 m/sec (Grade 7 on the Beaufort scale) occur a significant portion of the time.

During typhoon season, typically from July through October, the rhythm of work changes dramatically.

Preparations begin about two days before an official Sea Warning is issued, as the team transitions into "Defence Mode." All offshore work must stop immediately. Vessels are secured with heavy steel cables so they won't drift into navigation channels and to protect the entry and exit points for commercial cargo ships. Work often halts for at least a week while a typhoon churns through the region.

GUARDIANS OF THE COAST

The backbone of this defence is a line of 117 massive caissons, each weighing up to 8,600 tonnes.

To outsmart the weather, the team adopted an onshore caisson fabrication method instead of traditional floating construction. This innovation cut production time from 28 days to just seven and allowed work to continue year-round, even during rough seas.

"Installing each caisson offshore is a high-stakes operation. There is no room for error."

Huang

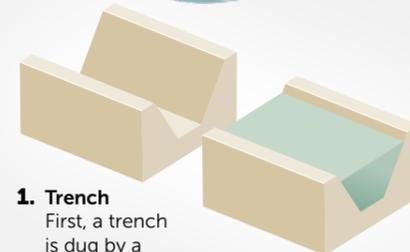
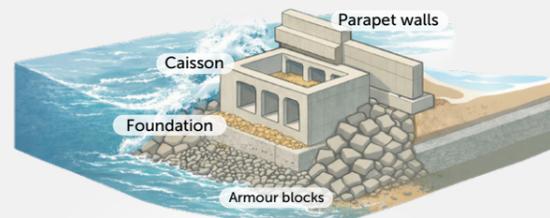
If the caisson is misplaced, the team needs to refloat and start over. Hence, achieving 'one-shot success' is an absolute priority.

INSTALLING THE CAISSON SEAWALL

For Huang, the project's most unforgettable moment came during the installation of the very first caisson. As the floating dock submerged and the massive structure settled into place, the entire team watched in silence.

"When we confirmed it was perfectly positioned, there was this collective sense of relief," he says. That moment will always stay with him.

Before a port is built, a seawall must be constructed using caissons, which are huge watertight concrete structures. A foundation consisting of layers of rock and sand must be laid for the seawall to sit on.



1. Trench
First, a trench is dug by a dredger.

2. Filling trench
Trench is then filled with sand.

CONSTRUCTING THE SEAWALL

BY THE NUMBERS

Seawall Length
4,014 metres

Number of Caissons
117 units
(15 different designs)

Design Life
50 years
(Resilient to 100-year storm events)

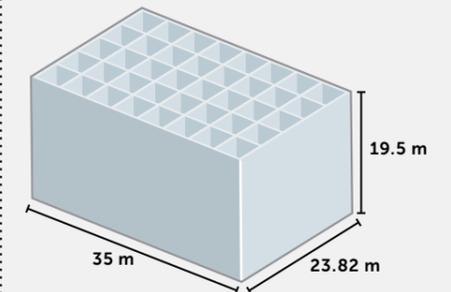
BACKACTER 900 VESSEL

To achieve the strict positional tolerances required for caisson installation, the team relies on BA-900, Taiwan's largest backhoe dredger. Typically mounted on a 55 to 65 m pontoon, it delivers high excavation capacity at depths of 15 to 23 m, enabling precise guidance and stable operations even in challenging deep-water conditions.



THE CAISSON

A caisson is a large watertight structure of reinforced concrete. It is used as part of the seawall for the Taipei Port. Each caisson weighs 8,600 tonnes, or equivalent to 1,400 African elephants.

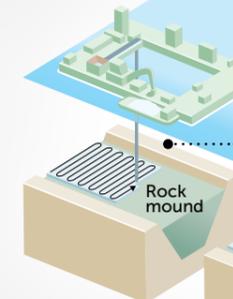


HOW A CAISSON IS BROUGHT TO THE SITE

- A caisson is constructed on land with continuous concrete pouring, 24 hours a day for five days straight.
- The caisson is then towed out to the sea.
- At site, the dock submerges and the caisson is towed out and sunk onto the seabed.

Guided fall-pipe system allows fast and accurate rock placement.

Backacter 900 Vessel



3. Rock mound
Laid over the sand layer.

4. Compacting
The rock mound layer is then compacted.

5. Smaller rocks
A layer of smaller rocks is laid over the rock mound layer.

6. Laying caisson
Caisson is ballasted (sand filling which adds crucial weight to prevent movement during extreme weather) and sinks onto the foundation.

Barge submerges.

Caisson is towed out to sea.

During typhoon season, Huang recalls: Winds will howl for days straight, sand so fine it stings your eyes and grinds into your nose, and seas regularly drive six- to seven-metre waves against the seawall, often overtopping the six-metre-high parapet wall.



Visual direction adapted from a publicly available infographic by The Straits Times (2019).



Caisson fabrication in progress. Designed for strength and efficiency, some units rely on sheer weight to resist monsoon waves, while others feature wave-dissipating chambers to reduce wave reflection, creating calm water zones.



Huang with his workmates on site at Taipei Port. Behind the concrete and steel is a team that has spent nearly six years working through monsoons and typhoons to deliver a 4,014-metre seawall built for the next 50 years.

DID YOU KNOW?

- The caissons, which resemble oddly shaped armour blocks in form, originated as anti-tank barriers during World War II before engineers discovered their wave-dissipating properties.
- The caissons aren't just dead concrete. It functions like 'marine apartments.' The calm waters inside the wave-dissipating chambers create a perfect sanctuary for algae and small fish to thrive, effectively turning the seawall into a thriving vertical reef.

**GAMUDA AUSTRALIA DELIVERS
WORLD-CLASS TUNNELLING
INNOVATION
THE LINING
ERECTOR
MACHINE (LEM)**

Delivering innovation underground demands more than new ideas. It requires confidence and will to challenge long-standing norms and the discipline to manage risk through collaboration.

On the Western Tunnelling Package (WTP) of Sydney Metro West, the team at the Gamuda and Laing O'Rourke Consortium (GLC) did exactly that, implementing a first-of-its-kind precast segmental permanent lining system within mined horseshoe tunnels using a Lining Erector Machine (LEM).

The successful delivery of 1.5 km of watertight spur tunnels at Clyde stands as a practical example of how integrated design and construction can deliver safer, faster and higher-quality outcomes.



The LEM method can speed up tunnel lining by 17 m per day, which is five times faster than a traditional cast-in-place concrete lining, while delivering a high-quality, watertight finish and improving worker safety.

MOVING TO PRECAST

The choice to use a precast lining system for the two spur tunnels was shaped by both project-specific constraints and long-term performance objectives. Tight horizontal curves (minimum radius 290 m), the relatively short tunnel lengths and the need to match the TBM-driven mainline tunnels all pointed towards an alternative to traditional in-situ concrete linings.



The installation of the precast lining system using a LEM, at a glance. Conventional methods would have required large formwork setups, concrete pumped from the surface and multiple pours, which is a slow and labour-intensive process.

ENGINEERING THE BESPOKE LEM

Central to making this approach work was a bespoke LEM, developed alongside Herrenknecht, a long-time partner since our Stormwater Management and Road Tunnel (SMART) project in 2004. Specially designed for the spatial and geometric constraints of mined tunnels, the LEM allowed four-segment rings to be installed efficiently, comprising three steel fibre-reinforced trapezoidal segments for the crown and sidewalls, along with a reinforced flat invert. Although gasketed joints are rarely used in mined tunnels, their inclusion in the design helped achieve the required watertightness, despite limited industry precedents and formal design guidance.

Achieving this outcome depended on early and ongoing integration between primary support and permanent lining design. Operating within a design-and-construct environment, key decisions on excavation profiles, segment geometry and construction tolerances were often considered "at risk" to maintain the project's programme and procurement momentum. While the method is considered challenging, it highlighted the value of close collaboration between designers, constructors and suppliers from the outset, and the need to stay aligned with one another throughout the delivery.

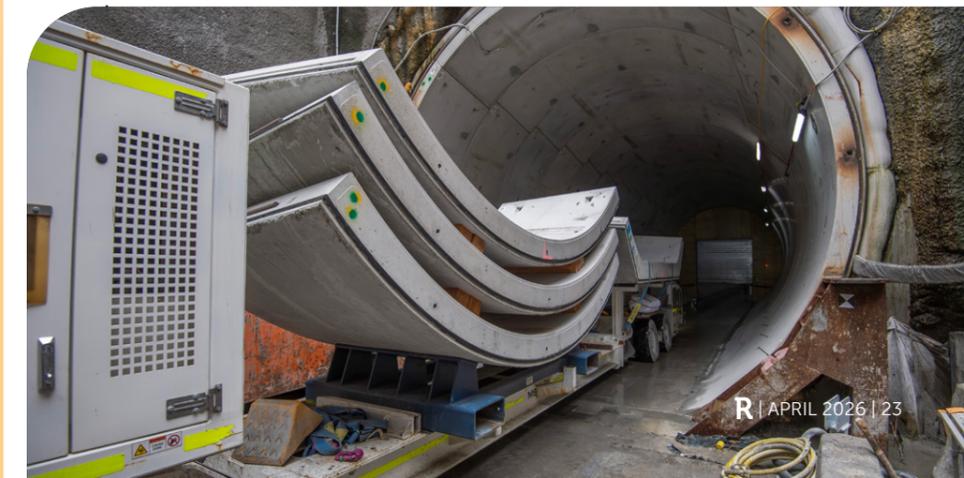
While precast linings are generally uncommon for mined tunnels, the team at GLC saw their clear advantages in safety, productivity and overall build quality. Off-site segment fabrication reduced manual handling and work at height, while an organised and streamlined installation process helped limit interactions within the tunnel. With these conditions, the team found that productivity increased by four to five times compared with traditional on-site lining methods. As the team became more familiar with the process, they were able to install more than the planned six rings per day and in later stages even exceeded that rate.

FROM CHALLENGE TO BENCHMARK

As with any first-of-its-kind solution, it came with challenges along the way. The team had to address issues such as ring stability, ring buoyancy, grout performance and supply consistency, requiring them to adapt and refine along the way. Each challenge, however, became an opportunity to learn and improve, strengthening both the system and the team's collective capability.

The WTP team has demonstrated that precast segmental linings in mined tunnels are not only viable options, but also highly effective. With earlier planning, optimised ring geometry and greater control over grout production, the approach has the potential to deliver even greater value on future projects—setting a new benchmark for complex underground construction.

Precast concrete segments are brought into the Clyde spur tunnels and installed using the LEM, marking its first use in mined tunnels and boosting productivity four to five times over conventional methods.





The QTMP Main Train Maintenance Facility takes shape in Ormeau, alongside extensive earthworks and culvert works across the 66-hectare site, led by Hawthorne. Once operational, the facility will run 24/7, supporting the maintenance and stabling of 65 new six-car trains under the QTMP.

LEADING THE TRACK AHEAD

Since joining the rail industry as a track worker 30 years ago, Paul Hawthorne's career has spanned high-speed, heavy-haul and conventional rail projects across Australia, Europe and the United Kingdom. His climb through the ranks has seen him work with some of the industry's most recognised organisations, including Network Rail, HS1, Swietelsky Rail Australia, Rio Tinto and Laing O'Rourke.

As DT Infrastructure's new Executive General Manager Rail, Hawthorne brings a clear vision to position DT Infrastructure as a truly national, turnkey rail partner. Central to this is DT Infrastructure's ability to seamlessly integrate track, civil and overhead wiring delivery with specialised in-house signalling and communications design, underpinned by progressive assurance.

This integrated model enables greater certainty, safety and efficiency across the full project lifecycle, and is already delivering results. Flagship projects such as METRONET High-Capacity Signalling project in Perth and the Queensland Train Manufacturing Program (QTMP) demonstrate DT Infrastructure's capability across both metropolitan and regional networks, reinforcing its reputation as a trusted delivery partner Australia-wide.

Looking ahead, Hawthorne is focused on keeping DT Infrastructure at the forefront of innovation, exploring how artificial intelligence can be used as a decision-support tool from planning through delivery and partnering with equipment manufacturers to introduce an automated rail plant. These advancements have the potential to reduce carbon emissions, improve productivity and significantly enhance safety on site.

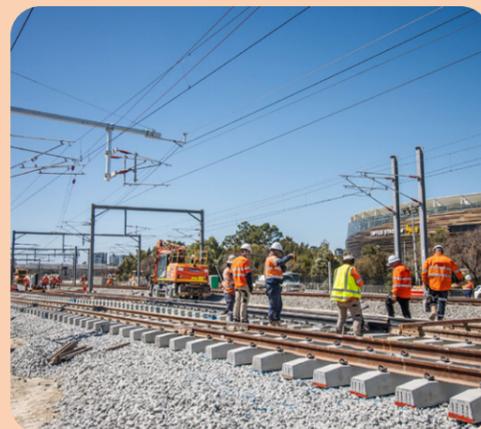
People development sits at the heart of Hawthorne's leadership approach. Shaped by early mentors in his own career, he is a strong advocate for structured career pathways, meaningful diversity initiatives and long-term workforce planning to help address the industry's critical skills shortage. He is particularly passionate about supporting the next generation of rail professionals and ensuring DT Infrastructure is an employer of choice.

Asked what advice he would offer those coming up through the ranks, Hawthorne keeps it simple and honest:

"Be prepared to step outside your comfort zone, as there will be challenges along the way, but these build resilience. Most importantly, be patient. Your career is a marathon, not a sprint. So, learn your craft, gain as much experience as you can, and don't rush the journey, enjoy it!"



Hawthorne (middle) didn't grow up knowing he wanted to be in the rail industry, but since starting out as a track worker almost 30 years ago, he has spent time in engineering, maintenance, asset management and managing major projects.



Hawthorne is committed to continue the delivery of meaningful social impact through DT Infrastructure's projects. The METRONET High-Capacity Signalling project generated approximately 1,700 local jobs during construction and equipped over 2,000 personnel with a deeper understanding of Aboriginal culture and heritage.



A JOURNEY OF GRIT

FROM CONQUERING JUNGLES TO CONNECTING COMMUNITIES

It begins, as many great Malaysian stories do, with the sun on their backs and the scent of wet earth after a storm. For the men and women of Gamuda, it was never simply about laying asphalt or pouring concrete. Every major journey starts with a single stretch of road. For Gamuda, that journey began in Malaysia, building roads through hillsides, jungles and plantations, connecting communities long before highways became symbols of speed and scale.

THIS IS THE BEGINNING

Our first road project, the Pahang Tenggara Road Project, better known as the Bahau-Keraton Highway, set the tone for disciplined delivery under demanding conditions. That foundation of grit was soon tested again on Federal Route 1, cutting through mountainous terrain between the West Coast and the Cameron Highlands.



More than just pushing local construction capability to new limits, it was about the young surveyor, standing in a clearing, seeing not just jungle, but a line on a map that would connect a farmer to the market, a grandchild to their grandmother.

By the late 1980s, as Malaysia accelerated its development, roads were no longer just access routes. They had become strategic links supporting economic growth. Gamuda's growing track record earned the trust of the Malaysian government, and projects followed in quick succession, including works in Jerantut, Gerik and Ipoh-Teluk Intan.

THE URBAN TRANSITION

The move into urban expressways marked a turning point. Projects such as the Shah Alam Expressway (SAE) and the Damansara-Puchong Highway (LDP) required a new approach: balancing engineering challenges with the realities of city living.

The true legacy of the SAE was not just its engineering over soft ground, but the communities it catalysed. It became a vital link between Greater Kuala Lumpur and Port Klang, improving freight movement, supporting industries and enabling the growth of townships such as Bukit Jalil, USJ, Sunway and Kota Kemuning. These districts flourished because residents finally had a reliable artery connecting them to the rest of the city.



As part of the preparations for the 1998 Commonwealth Games, Bukit Jalil was chosen as the site for the National Sports Complex, the largest of its kind in Southeast Asia. To support this development, significant infrastructure projects were introduced to improve the area's accessibility, including the SAE.

The success of the SAE paved the way for the LDP, which linked once-disconnected parts of the Klang Valley from Sri Damansara through Petaling Jaya to Serdang, opening access to Cyberjaya and key industrial areas. In doing so, it accelerated the rise of thriving townships such as Kepong, Puchong and Sunway, reshaping how people lived and worked across the region.



LDP's most iconic feature, Malaysia's first cable-stayed bridge erected over land, was designed to span a busy industrial intersection without columns below, allowing construction to proceed while traffic flowed beneath.

Projects like Western Kuala Lumpur Traffic Dispersal Scheme (SPRINT Highway) followed, featuring Malaysia's first 2.9-km double-decker carriageway at Kerinchi and the twin-bore Penchala tunnels, a familiar route for many travelling between Mont Kiara and Damansara. Built through hard granite using the drill-and-blast method, the tunnels were carefully designed to preserve the surrounding forest reserve.

These experiences marked a decisive shift from straightforward construction to integrated delivery shaped by planning, sustainability and long-term community impact.

As Gamuda's expertise expanded into tunnelling, water and energy infrastructure, highways remained a core foundation. Today in Malaysia, that legacy continues with the Northern Coastal Highway in Sarawak, which is set to enhance trade and investment ties between Sarawak, Sabah and Brunei, while serving as a catalyst for socio-economic growth in northern Sarawak.

GOING GLOBAL

In the early 2000s, Gamuda took its Malaysian grit overseas with the Panagarh-Palsit Highway and Durgapur Expressway in India, as well as the Dukhan Highway in Qatar.

In India, the real test went far beyond building highways. Trading familiar jungles for crowded townships, unfamiliar languages and new ways of working demanded a different kind of resilience. Even routine tasks, like setting up a site office, required navigating subtle cultural differences that affected planning, coordination and communication. Over time, Gamuda learned to listen before building, working alongside local crews and earning the trust of regulators and communities. It was here that Gamuda proved its adaptability was not just technical, but deeply human.



[Top] Panagarh-Palsit Highway and [bottom] Durgapur Expressway form part of West Bengal's National Highway 2, connecting major cities like Delhi with Kolkata. The highways totalling almost 130 km were successfully completed and handed over to the National Highways Authority of India in early 2005.

The journey soon extended to the Middle East with the Dukhan Highway in Qatar, delivered as part of the country's modernisation efforts ahead of the 2022 FIFA World Cup. Here, the challenge shifted again from dense settlements to open desert. We worked against extreme heat, sand haze and vast exposed terrain, where resilience meant discipline, planning and the ability to adapt to one of the harshest construction environments we had encountered.

THE MODERN ERA

Today, that legacy continues Down Under with projects like the Coffs Harbour bypass and the M1 Motorway Extension to Raymond Terrace, where the definition of progress has evolved.



As [second from right] Jason Moran, Construction Director for the Coffs Harbour bypass, notes: "It is no longer just about getting traffic from point A to B, it's about how we are delivering infrastructure that fits harmoniously into the landscape."

At Coffs Harbour, that means building through sensitive coastal ecosystems while protecting what makes the region unique. The project prioritises biodiversity, minimising its footprint near koala habitats, relocating targeted fauna and installing crossings to maintain wildlife movement. Progressive revegetation and habitat restoration ensure the highway leaves behind not just a transport corridor, but a stronger ecological legacy.



Further south, the M1 Motorway Extension to Raymond Terrace tells a different story. Running through the Hunter region, known for its river systems, vineyards and the port city of Newcastle — the project places environmental stewardship at the centre of delivery. Along the Williams River, salvaged logs from construction works are being repurposed to stabilise eroding riverbanks while creating habitats for aquatic species and improving flood resilience.

As the Group continues to expand its footprint at home and abroad, one thing remains constant: a commitment to building infrastructure that stands the test of time.

"What's different today is the involvement of various disciplines – from environment to sustainability, community, quality and safety – and the foresight required from planning to execution. Projects like this demand cohesive, systemic approaches as each decision affects the long term outcomes."



Ian Moffat
M1 Motorway Extension to Raymond Terrace
Construction Director



Across both [left] Coffs Harbour bypass and [right] M1 Motorway projects, sustainability is embedded into decision-making. Success is measured not just by what is built, but by how responsibly it is delivered. It is this stewardship that has earned the projects a 'Leading' Design Rating from the Infrastructure Sustainability Council, proving that the highways of our future must protect the world they connect.

GAMUDA IN RENEWABLES

In 2021, Gamuda expanded into renewable energy, marking a new chapter in our growth journey. In just four years, we have built a diversified portfolio spanning solar, wind, hydro, pumped hydro, energy storage and transmission across four countries – Malaysia, Australia, Taiwan and Singapore.

Today, with a 3 GW project pipeline and 14 projects underway and in development, our renewable energy footprint continues to grow in scale and impact. Here's a snapshot of our latest projects across the region.



HYDRO

187.5 MW

ULU PADAS HYDROELECTRIC DAM

Malaysia's first and largest hydroelectric independent power producer, set to generate approximately 1,052 GWh of clean energy annually for Sabah by 2030.



SOLAR

250 MW

WEASEL SOLAR FARM

Seeks to create local jobs for the Central Highlands region and support Tasmania's net-zero transition.



GRID BATTERY ENERGY STORAGE SYSTEM (BESS)

100 MW/400 MWh

BESS PEKAN, PAHANG

The Tanjung Batu project marks the Group's first utility-scale grid-connected BESS asset in Malaysia, forming part of the inaugural MyBeST programme to strengthen grid system flexibility and support rising renewable penetration.

100 MW/400 MWh

BESS BAHAU, NEGERI SEMBILAN

Positioned within Malaysia's central load corridor, the project serves as a critical balancing node between the northern and southern grid segments, supporting renewable integration amid accelerating data centre-driven demand.

“When we ventured into the energy space back in 2021, despite being a new vertical, we brought with us five decades of experience in engineering, project management and digital capability. By integrating these strengths and leveraging the skillsets and expertise of our people, we are able to scale and deliver renewable energy projects across solar, wind, battery and hydro. That collective capability is what gives us confidence as we grow in this sector.”

Joshua Kong
Renewable Energy Director, Gamuda Engineering



SOLAR

39 MWp

NEDA39 SOLAR FARM

BESS-ready solar plant pioneering VRE merchant market participation in Malaysia under the NEDA framework.



TRANSMISSION INFRASTRUCTURE

345 kV

GANGFENG-ZHONGKE, ZHONGKE-HENGSHAN UNDERGROUND TRANSMISSION LINE, TAICHUNG

A key backbone of the Central Taiwan Science Park, a major hub of Taiwan's semiconductor industry.



TRANSMISSION INFRASTRUCTURE

161 kV

SONGSHU-GUANGFENG UNDERGROUND TRANSMISSION LINE, TAOYUAN

Reinforcing grid resilience across Northern Taiwan.



TRANSMISSION INFRASTRUCTURE

320 kV

STAGE 1 OF MARINUS LINK

Enabling the flow of more electricity in both directions, delivering affordable, reliable and clean energy for customers in the National Electricity Market (NEM).



WIND

228 MW
BOULDER CREEK WIND FARM
38 turbines powering around 85,000 homes in Queensland.



WIND

256 MW
CARMODY'S HILL WIND FARM
42 turbines powering approximately 195,000 South Australia homes.

“With Gamuda’s constructability mindset, we engage early by integrating design and delivery from the outset. This allows us to better manage supply chain, logistics, cost and programme. Ultimately de-risking projects for our equity partners and EPC teams.”

Jarred Hardman
Chief Strategy and Growth Officer, Gamuda Australia

“From the outset, our focus was on building an operational framework that could scale across markets and technologies, aligning development, engineering, procurement and delivery under clear governance. Today, our expanding portfolio reflects how far we’ve come, combining delivery expertise, specialist knowledge and partnerships to support renewable integration and growing energy demand in Malaysia and in mature markets like Australia.”

Puganesan Thiruselvan
Renewable Energy Head of Operations, Gamuda Engineering



WIND

350 MW
CELLARS HILL WIND FARM
A landowner-led project with the potential to create local jobs and power approximately 130,000 homes whilst contributing to Tasmania’s Renewable Energy Target (TRET) for a carbon-neutral future.



ELECTRIC MOBILITY

240 DC-CHARGERS
GALI BATU MULTI-STOREY BUS DEPOT
Singapore’s largest EV-ready public transport facility, hosting over 240 electric buses and 240 charging stations.



SOLAR + BESS

585 MWp + 49 MW/562 MWh
GOULBURN RIVER SOLAR FARM
One of Australia’s largest hybrid solar and BESS project, powering 225,000 homes sustainably.



SOLAR + BESS

435 MWp + 300 MW/1,200 MWh
MORTLAKE ENERGY HUB (ECI)
An integrated hybrid renewable energy project in southwest Victoria set to power approximately 200,000 homes annually, significantly bolstering the state’s transition to a cleaner and more resilient energy network.

“With over 1 GW in delivery and another 1 GW in early contractor involvement (ECI), DT Infrastructure’s renewable portfolio reflects a deliberate approach to building a long-term position in Australia. Spanning solar and wind across multiple states and clients, it lays the foundation for our ambition to be a leading contractor in the energy transition.”

Tom Perkin
Strategy General Manager, DT Infrastructure

MEET THE MINDS BEHIND

SPATIALQ

Urban planning has traditionally been both physically and intellectually demanding, requiring practitioners to sift through hundreds of pages of policies, manually overlaying maps and rely on a small circle of technical experts to interpret complex data. At Gamuda Technologies, a diverse team set out to change that narrative.

SpatialQ is an in-house, artificial intelligence (AI)-powered geospatial intelligence platform designed to democratise city planning, using Large Language Models (LLMs) to understand user questions, identify the relevant data and automate the decision-making process.

Geospatial analysis is traditionally a laborious, exhausting task that requires specialists to overlay data and perform complex Geographic Information System (GIS) operations before getting a result. With SpatialQ, it is designed to make complex spatial analysis more accessible to non-GIS users by removing these manual steps and adding an intelligent layer that delivers high-level insights, simply by typing a question.

While the technology itself is transformative, the real story lies with the people behind it: a team that successfully bridged the gap between urban planning theory and cutting-edge artificial intelligence.

SOLVING THE SUITABILITY QUESTION

The idea for SpatialQ emerged from a recurring challenge in public-sector planning. Md Farabi Yusoff bin Md Yusoff, Gamuda Technologies' Head of Smart Infrastructure, who leads the smart city domain and is a registered urban planner, recalls his experience working with district officers tasked with identifying land for new schools.

"They would instruct their settlement officers to find land, and the focus was often on availability rather than suitability."

"For officers to identify the correct plot (rather than just a random one), the traditional approach can take 10 to 14 days of intensive manual processing."

In addition, existing tools in the market were often complex, rigid and detached from local planning realities. They lacked the AI capabilities and contextual intelligence the team envisioned. To build a truly intelligent geospatial platform, the team realised that off-the-shelf solutions would not suffice. They had to build their own.

"SpatialQ helps urban planners move from finding any plot to identifying the right plot - faster, smarter and with evidence."

Farabi

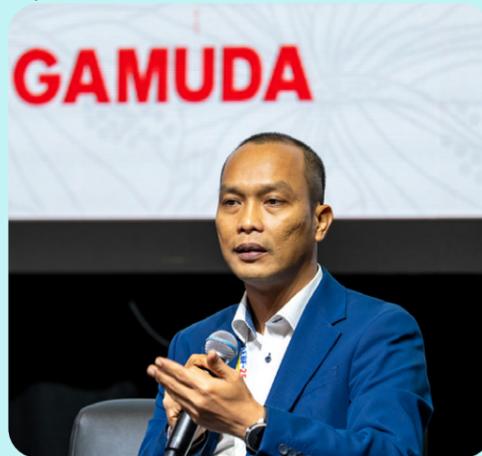
Gamuda Technologies's Senior Product Manager, Stephen Prashant said that the team spent two months developing a custom proof-of-concept to show that geospatial intelligence could be conversational.

"Every demo we have done so far has generated strong interest, which confirmed that we were not just building a tool, we were addressing a long-standing bottleneck faced by urban planners. With SpatialQ, users can simply type their query and get a response within six to eight minutes, depending on the complexity of the query," Farabi added.

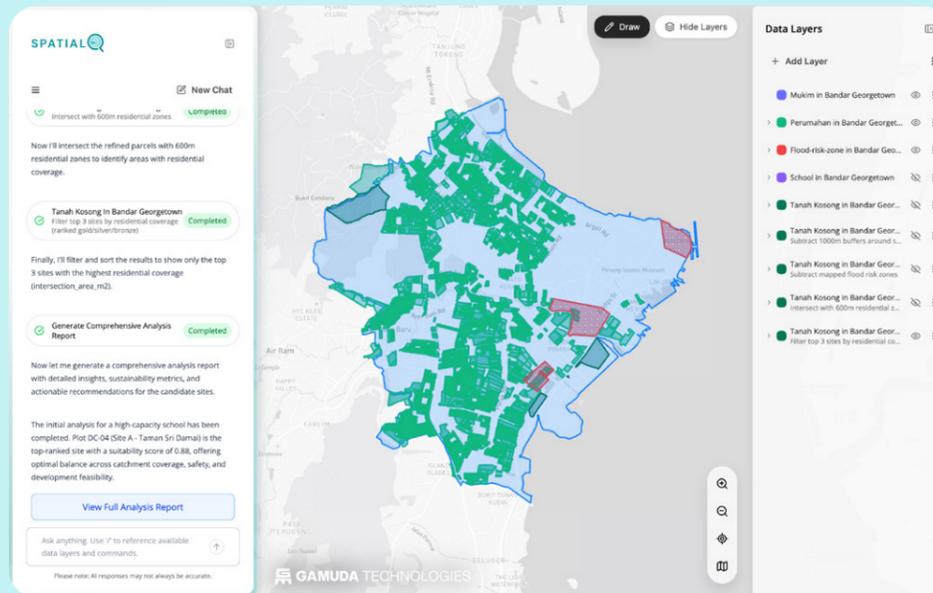


Stephen presented SpatialQ during the Gamuda-CENTEXS MoU exchange at CENTEXS's Dalat campus launch in November 2025. He ensures that the Smart City Technologies product roadmap, including SpatialQ, stays closely aligned with the overall business strategy set by Gamuda Technologies.

With 23 years of experience in strategic planning, digitalisation, GIS, smart cities, urban mobility and big data analytics, Farabi helps public and private sectors explore how SpatialQ can meet their unique business needs.



The diverse team behind SpatialQ, consisting of a mix of junior and senior engineers. From left: Md Farabi Yusoff bin Md Yusoff (Head of Smart Infrastructure), Jeremy Leong Zhung Zen (Senior Engineer - AI), Winson Low Yao Qian (Associate Product Owner), Rizal bin Mohamad Suhaimi (Software Development Executive - Backend), Carter Chin (Software Development Engineer - AI), Ahmad Afiq bin Amran (Software Development Engineer - Frontend), Jeremy Lee Ye Cheng (Software Development Engineer - Frontend), Ng Wan Qin (Intern - AI), Deshika Nair A/P Sangaran Nair (Software Development Engineer - Backend), Timberlake Lin Song Ze (Software Development Engineer - Frontend).



A snapshot of SpatialQ's clean and easy-to-navigate UI, allowing users to view their generated prompts, maps and data.

A MELTING POT OF EXPERTISE AND EXPERIENCES

Traditionally, developing a planning tool of this nature would require a team of seasoned GIS specialists. The SpatialQ team took a different approach.

Deshika Nair, Software Development Engineer - Backend, shared, "While most of us did not come from a GIS background, we were guided by Farabi's domain expertise throughout the development process."

Rizal Bin Mohamad Suhaimi, Software Development Executive - Backend, added that Gamuda's internal GIS specialists also supported the team throughout development.

What started as a small core of two developers, consisted of Deshika and Rizal, has now grown into a multidisciplinary team of approximately 13 to 15 members. The group comprises a balanced mix of senior engineers, with an average of five years' experience and junior talent, many of whom are in their first roles after university.

LEARNING THE LANGUAGE OF CITIES

Bridging urban planning and technology required more than technical skill, it required a shift in mindset.

"We had to learn a completely new language," says Winson Low Yao Qian, who is SpatialQ's Associate Product Owner. "Before this, many of us didn't truly understand what 'land use' meant in practice."

That understanding deepened when the team realised that a single state's land-use dataset could involve millions of records. This scale and complexity reshaped how they approached system design, database architecture and performance optimisation.

CURIOSITY AND MENTORSHIP

What unites the SpatialQ team is a common belief in curiosity rather than compliance.

"Everyone is proactive and asks a lot of questions and that's encouraged."

"Curiosity is essential when you're working through ambiguity," Winson explains.

That culture is reinforced through mentorship. Wes Lee Wei Fan, the project's Development Lead with over eight years of experience in mobile and web development and Jeremy Leong, a Senior AI Engineer, both play crucial roles in guiding and developing junior engineers and interns. Beyond technical skills, the seniors build confidence, fostering a supportive and collaborative learning environment.

Every Friday, the team holds Sprint Review and Retrospective Sessions where members share their progress. These sessions promote transparency, alignment and collective ownership of the product.

LOOKING AHEAD

SpatialQ's applications extend well beyond land-use planning. The platform is being explored as a proactive disaster-preparedness tool, capable of identifying flood-risk zones around critical infrastructure. In the private sector, it is being tested for retail and commercial planning, helping businesses identify strategic locations through demographic and competitive analysis.

From a modest internal initiative to a platform with the potential to redefine how spatial decisions are made, SpatialQ's journey demonstrates a simple truth: when diverse minds come together under a culture of curiosity and trust, they don't just map the future, they build it.

DIGITAL SUSTAINABILITY

Do you face challenges in rapidly establishing your project's environmental baseline?



Is turning complex sustainability goals into measurable impact proving difficult?

How quickly can you assess your project's ecosystem health?

Could your team benefit from a streamlined, actionable ESG digital framework?

SIGMA



Redefining digital sustainability is closer than you think.

Ong Jee Lian of Group Corporate Communications and Sustainability and John Lim of Gamuda Technologies might have just what you need.

Stay tuned for the next RISE issue to hear directly from the architects behind this solution.

KEEPING PENANG MOVING WHILE WE BUILD THE LRT

As construction of the Penang LRT Mutiara Line picks up pace, traffic management has become a critical component of the project. With a 23.7 km alignment running from Silicon Island to Komtar, the LRT passes through some of Penang's busiest areas, including Batu Uban, Sungai Nibong and the Bayan Lepas Free Industrial Zone (FIZ).

To keep traffic moving during construction, a comprehensive Traffic Management Plan (TMP) is put in place. This plan is the result of months of traffic studies, planning and coordination with local authorities, and has received the necessary approvals from the Penang Island City Council (MBPP) and the Public Works Department (JKR).

EMBRACING DIGITAL TOOLS FOR SMARTER TRAFFIC MANAGEMENT

Beyond physical adjustments on the ground, the project is leveraging technology to monitor and mitigate traffic impacts in real time. A key initiative is utilising drone surveillance at major work sites and traffic hotspots. Drones provide project managers and traffic engineers with a live, aerial view of traffic conditions, allowing them to quickly identify unexpected bottlenecks, monitor diversion effectiveness and ensure construction activities do not unnecessarily impede flow.

This data-driven approach enables proactive adjustments to the TMP. This is a deliberate effort under the project management called Surveillance, Enforcement and Traffic Command Centre or SETCOM, as it is frequently referred to. It serves as a centralised hub designed for real-time traffic monitoring and rapid response to ensure the smooth operation of the transit system and surrounding infrastructure.

To keep the public directly informed, the project has partnered with navigation apps like Waze. Through this partnership, temporary road closures, lane reductions and newly activated traffic patterns are updated digitally in near real-time. This integration ensures that the thousands of motorists using Waze will receive immediate guidance on the best

View the Penang LRT Mutiara Line Alignment:



View the Penang LRT Mutiara Line Traffic Management Plan (TMP):



alternative routes, to distribute traffic away from construction zones and reduce overall congestion.

With the TMP being implemented in stages, Penang motorists are experiencing lane reductions, temporary closures, new U-turns, traffic diversions and adjustments to traffic lights in selected areas. These changes, supported by digital monitoring, are carefully planned to support early works and construction activities.

MANAGING TRAFFIC AT CRITICAL HOTSPOTS

One of the key affected areas is the Bayan Lepas FIZ, where LRT construction will take place along the centre of Jalan Sultan Azlan Shah. To ease congestion, traffic lights at the Jalan Tengah junction will be removed to enable free-flow traffic in certain directions. New U-turns will be introduced to replace turning movements that will no longer be permitted at the junction.

In Sungai Nibong, where construction affects nearby schools, an alternative route and designated waiting areas for school buses and parents have been

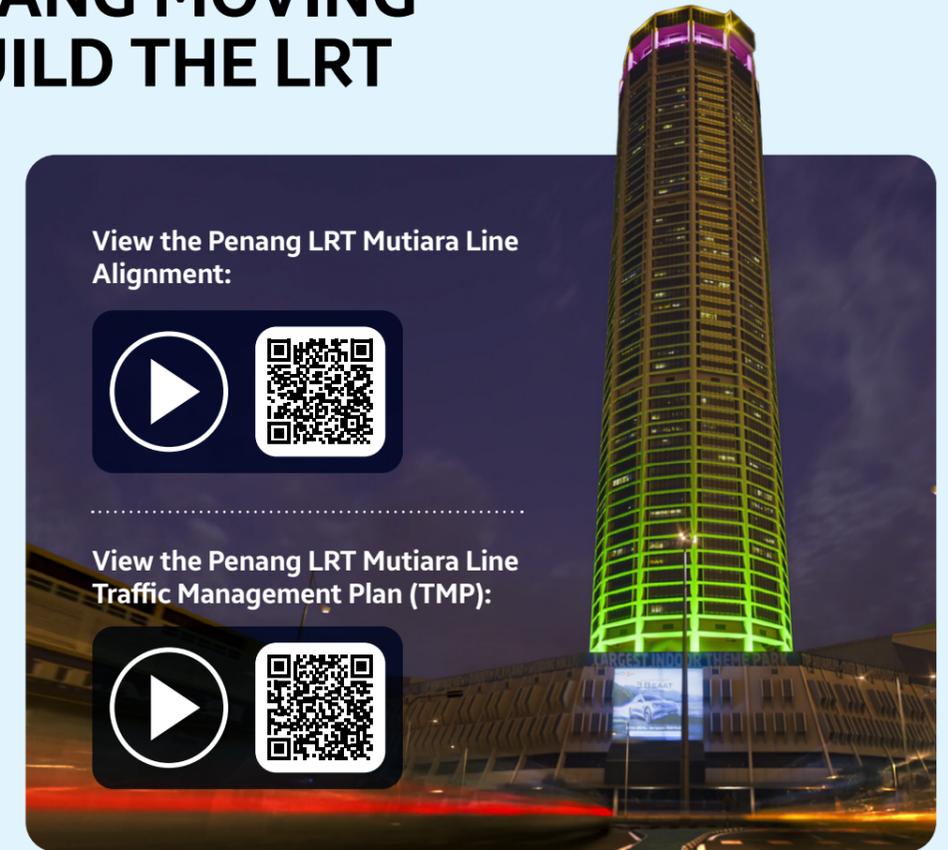
introduced under the elevated highway to replace roadside spaces closed to facilitate the works.

Meanwhile, in Batu Uban, road widening works are underway near the Sunny Point junction to maintain the existing number of lanes during piling and viaduct construction. Changes to traffic-light phasing, supported by new U-turns, are planned to improve traffic flow.

In the heart of George Town, lane reductions and diversions near Komtar will be implemented in stages at Jalan Magazine. One major change will be the removal of traffic lights at the junction in front of Komtar and Gama Supermarket.

Public cooperation is key to making the TMP work. Motorists are encouraged to follow temporary road signs, listen to traffic marshals, plan their journeys in advance and use Waze for real-time traffic updates.

While some inconvenience is unavoidable, these changes are temporary. They are part of a larger effort to deliver a safer and more connected public transport system for Penang.



INTEGRITY AT THE HEART OF OUR DECISIONS

As Gamuda continues to grow its global footprint, our success is defined not just by the infrastructure we build, but by the trust we earn. Building on the foundation of our previous cycle from 2021 to 2024, the newly launched Organisational Anti-Corruption Plan (OACP) 2025 to 2028 is a vital renewal to ensure our practices remain relevant and meet the highest standards.

The previous OACP was the initial stepping stone, coverage was smaller and focused strictly on high-risk areas determined by the steering committee, such as procurement and project management. This time around, the updated plan is a massive expansion. It now covers 85 to 90 percent of all departments and projects across the Group.

We spoke with Siti Ezyana Syed Jaafar, our Group Chief Integrity and Governance Officer, who stressed that ethical conduct remains the absolute foundation of every decision we make.

WHY THE OACP MATTERS?

The OACP is a requirement by the Malaysian Anti-Corruption Commission (MACC) for companies with government interests. It serves as a benchmark and clear guideline for the Company in risk management and the prevention of bribery and corruption. But beyond compliance, it is really a practical guide for all of us. The plan spans three years, with the latest cycle running from 2025 to 2028. At its core, the plan exists to make our working environment clearer and safer. When the rules are transparent, it protects both you and the Company.

MEETING INTERNATIONAL STANDARDS

As Gamuda expands internationally, we must also meet the anti-corruption standards of the countries we operate in. If our governance practices fall short of international expectations on transparency and ethical conduct, it jeopardises our ability to participate in global tenders or partner with multinational organisations. Strong

governance is not just about compliance, it protects our reputation and ensures we remain competitive on the world stage.

ALIGNING WITH THE NATION'S PUSH FOR ZERO CORRUPTION

The OACP ensures the Company complies with the latest guidelines under MACC's TRUST principles and national development requirements. It also heavily aligns with the Prime Minister's strong emphasis on preventing corruption and bribery.

MACC's TRUST Principles

- T** – Top Level Commitment
- R** – Risk Assessment
- U** – Undertake Control Measures
- S** – Systematic Review, Monitoring and Enforcement
- T** – Training and Communication

Integrity builds trust. With the OACP 2025 to 2028 aligned with the MACC's principles, Gamuda continues to build not just infrastructure, but confidence in how we do business.

PROTECTING GAMUDIANS GLOBALLY

Although Gamuda's headquarters is in Malaysia, our projects and partnerships span across many countries.

By having these standardised plans in place, we ensure everything runs smoothly globally. This protects our overarching company image and ensures our business does not pose high risk to our international partners and clients.

INTEGRITY AS A SECOND NATURE

Integrity is not a complicated concept. Most of us learned it very early in life — simple things like telling the truth and doing the right thing, even if no one is looking. When you come to work, you simply bring those values forward into your daily operations. For example, if a family member intends to bid for a Gamuda project that you are involved in, the correct step is to declare it to your Head of Department (HOD) or Project Director (PD). Transparency removes doubt and ensures everyone understands that the process is fair.

BECOMING AN INTEGRITY CHANGEMAKER

Our Gamuda Integrity Changers (GICs) are appointed individuals who act as key points of contact, connecting teams and supporting integrity initiatives across the organisation. They are nominated by their HODs based on their credibility, professional standing, and ability to make sound judgments.

You do not need a formal title to be a changemaker. Anyone can start by practising three simple things:

First, **have awareness** — understand the policies and the Integrity Pledge you signed.

Second, **declare conflicts early** — if something feels like a grey area, transparency is always the safer route.

And third, **ask questions** — when in doubt, reach out to the Integrity and Governance Unit.

SEE SOMETHING, SAY SOMETHING

We have a dedicated whistleblowing platform where you can lodge a complaint anonymously. Confidentiality is extremely important to us. We want employees to feel safe raising concerns without fear of retaliation. Once a valid complaint is received, it triggers a full investigation and is reported directly to the audit committee.

At the same time, we encourage responsible whistleblowing by raising concerns sincerely and in good faith.

WHAT ARE THE MOST CITED CASES?

Speaking up can sometimes feel intimidating, but understanding what holds us back is the first step towards building a stronger culture. Based on our recent surveys, Conflict Avoidance (31 percent) is the most commonly cited factor that influences whether concerns are raised. Another 18 percent of respondents highlighted a 'Fear of Unfavourable Treatment', which shows that reassurance and trust from leadership remain crucial.

The good news is that overall sentiment is strongly positive across the board. A solid 75 percent of employees agree that their team treats concerns respectfully, and 60 percent feel safe to speak up. While 53 percent agree they can share honest feedback, a 37 percent neutrality rate indicates there is still room to grow our confidence. Let us keep building that trust together!

Change is part of progress, and governance practices will continue to evolve. Instead of seeing integrity policies as something restrictive, I encourage everyone to see them as guardrails. They exist to guide, protect and assure you that we continue building a company we are proud of. Remember that integrity is something within you. Whether you are an employee, a parent or a child, it is a core value that defines who you are as a person.

Ezyana Jaafar



Group Managing Director Dato Lin Yun Ling kicks off the launch with a strong message on our core values.

Ezyana Jaafar addressing colleagues from across the Group and members of MACC during the launch event on 9th February.



Our newly appointed GICs from across the Gamuda Group tuning in during the event launch.



Say hello to your IGU team! Led by Ezyana Jaafar as Chief, the team includes Nur Husna Nasrudin (Manager), Faris Amani Mohammad Ali (Senior Executive) and Emily Mohd Ismail (Executive), who work hard behind the scenes on Level 8 of Menara Gamuda to guide and protect us every step of the way.

HEAR FROM THE VOICES OF OUR INTEGRITY CHANGEMAKERS

We also spoke with three GICs to see what upholding these values look like on the ground.

What does 'choosing integrity' look like in your day-to-day role?

In Contracts and Commercial (C&C), prioritising integrity over expediency maintains the project's financial conscience. Certifying a progress claim is more than shifting figures between columns, it validates work completed. By aligning certifications with ground truth, we safeguard project interests and preserve the budget for completion.



Jocelyn Wong Chew Yin,
Manager of Contracts and Commercial,
Gamuda Engineering

How do you guide colleagues through ethical dilemmas?

Leading change begins with personal accountability. Overseeing our digital platforms, I view technology as a bridge to transparency and ethical practice, not merely a set of rules. We have also introduced grievance channels to empower colleagues to manage ethical dilemmas. When voices are protected, people approach ethical grey areas more confidently.



Madhu Shiv A/L Jayawant,
Project Manager of Penang Mutiara Line,
SRS Consortium Sdn Bhd

How do you balance operations and 315 OACP reporting?

We ensure all committed tasks are realistic from the outset. When drafting OACP items, my HOD and I balanced core requirements by removing initiatives we could not realistically deliver. Quarterly check-ins monitor our progress and resource allocation. Our lean team and lack of red tape make the OACP a collective responsibility, integrated into our daily operations.



Rebecca Toh Jia Hui,
Assistant Manager of Strategic Partnerships, Business Development Unit,
Gamuda Land

THINGS HACKERS LOVE THAT WE ACCIDENTALLY DO

A Conversation with **Ramana Ramakrishna**, Head of Cybersecurity and Programme Delivery for Gamuda DNeX Cloud.

The RISE team, recently sat down with Ramana Ramakrishna to discuss the evolving landscape of digital threats. While we often think of cyberattacks as complex coding manoeuvres, Ramana pointed out that hackers often rely on simple human behaviours.

Our conversation focused on the small, everyday habits that could accidentally open the door for intruders and how we can shift our mindset to stay protected.

“Shoulder surfing is arguably the most dangerous exploit because it only requires a wandering eye. We let our guard down in public, but a single glance at your screen in an airport can give an attacker all the details they would need to bypass your security.”

Ramana Ramakrishna



HOW RAMANA PRACTICES WHAT HE PREACHES

Ramana’s personal routine serves as a blueprint for anyone looking to tighten their digital security. These habits are designed to move away from “convenience” and toward “control.”

Privacy Screens

A physical shield for his devices to stop shoulder surfing in its tracks.

Digital Minimalist

He avoids all social media except LinkedIn to reduce his “attack surface.”

TOP EXPLOITS TO WATCH FOR

-  **Phishing**
Deceptive emails designed to steal data.
-  **Baiting**
Offering “free” downloads or physical media that hide malware.
-  **Spear Phishing/Whaling**
Highly targeted attacks on well-known individuals or senior leaders.
-  **Quishing**
Malicious QR codes that lead to fraudulent websites.
-  **Password Reuse**
Using the same password across multiple sites creates a domino effect.
-  **Social Media Reconnaissance**
Gathering public info to build a profile for an attack.
-  **Multi-Factor Authentication (MFA) Fatigue**
Spamming your phone with login approvals until you accidentally click “Yes.”
-  **Business Email Compromise (BEC)**
Spoofing official emails to redirect payments or data.
-  **Clickbaiting**
Using fake, sensational news to trick you into clicking malicious links.
-  **Shoulder Surfing**
Watching your screen in public spaces.

THE “HUMAN” ELEMENT OF RISK

Ramana highlights a surprising truth: Our best trait, **empathy**, is often our greatest weakness. Hackers exploit our desire to be helpful or polite to gain access to private data.

THE GOLDEN RULE: PRACTICE ZERO TRUST

Verify everything, even if it feels “impolite” to double-check.

SAFETY IS A TEAM SPORT

Security happens every time you lock your screen or verify a link. With Business Email Compromise attacks up by 1,800 percent over the last three years due to Generative AI, staying alert is vital. At Gamuda, we use advanced tools like the Cato network and regular system health checks to catch threats early. However, technology is only half the battle. Your vigilance is our most important layer of defence.

Make it a non-negotiable habit to lock your screen (Windows + L) every time you step away, and always use privacy screens in public. Digital safety starts with a simple pause: before clicking a link or acting on an urgent request, verify the sender’s address. By adopting this Zero Trust mindset, you protect both your personal data and our organisation.

Transactional Limits

Daily spending caps on banking apps to minimise damage if a device is ever compromised.

Password Hygiene

Strict avoidance of password reuse across different platforms.

For best practices, don’t forget to aim for a 12-character minimum using a mix of uppercase letters, numbers and special symbols to maximise your account security.

SEE SOMETHING SUSPICIOUS?

Report it to our IT Team at gsd@gamuda.com.my immediately.

CELEBRATING OUR PEOPLE

Commemorating our 50th anniversary this year, we are reminded that we would not be where we are today without our people. It is a special year for us as we mark both this milestone and honour our 2025 Long Service Award recipients. For this special year, we have reached out to those who have been part of our journey. Their loyalty, hard work and steady commitment have helped shape our growth over the years and we are grateful for the role they continue to play in moving us forward.



A PERSONAL REFLECTION — 36 YEARS WITH GAMUDA

When I first walked into Gamuda 36 years ago, I was a young man with ambition, curiosity and a quiet determination to prove myself. I could not have imagined then that this company would become such a defining part of my life.

Gamuda was never just a workplace. It became a classroom, a testing ground and, over time, a family.

I have seen us grow through economic cycles, industry transformations and nation-building milestones. There were challenges that tested our resolve and breakthroughs that showed what conviction and competence can achieve.

What shaped me most was not only the projects, but the people. My mentor, Dato’ Lin, who guided me, colleagues who stood shoulder to shoulder during demanding times and the younger generation who continue to inspire with their energy and fresh thinking.

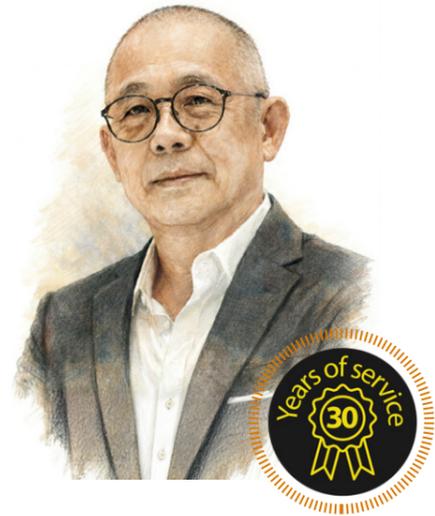
To the young Gamudians, my advice is simple:

- **Be patient with your journey, but impatient with your growth.**
- **Build real competency, credibility is earned, not claimed.**
- **Protect your integrity, it is your most valuable asset.**
- **And remember, no project is just concrete and steel, it is trust built for communities and generations.**

May Gamuda stay bold in vision yet steadfast in values as we advance digitalisation, sustainable construction and engineering innovation. Let us grow internationally without losing humility, nurture leaders from within and remember that every project ultimately serves people and communities.

Dato' Paul Ha Tiing Tai

Deputy Group Managing Director, Gamuda Berhad



THE EARLY DAYS

In the early days, before powerful software and instant communication, our tools were our hands and our minds. I remember long nights over drafting tables, preparing programmes and timelines on tracing paper, every line drawn by hand, with no "undo" button. It demanded precision, patience and teamwork.

Those demanding hours forged resilience and a strong sense of responsibility. More importantly, they built deep bonds among us. We were not just colleagues, we were a team united by a shared mission.

Today, the working style has evolved, and younger colleagues value work-life balance more. That is not a weakness, it reflects progress.

People often ask what advice I would give my younger self on my first day of work. My answer is simple: be patient, stay humble and never stop learning. Embrace challenges, they will become your greatest teachers.

Congratulations to Gamuda on 50 remarkable years. I am proud to be a part of this journey.

Ong Tee Juan
Project Foreman, Gamuda Engineering



MORE THAN A CAREER

When I joined Gamuda as an Account Executive in 2000, I didn't have a 25-year plan. I stayed because Gamuda rewards hard work and ownership. Early on, I realised I wasn't just working with numbers, I was helping build real communities. Whether a local township or a major project overseas, seeing blueprints become reality gave my work purpose. My journey here has been built on merit, perseverance and teamwork.

Back then, we were primarily a local developer creating Malaysian townships. Today, Gamuda has grown into a global player.

I have had the privilege of witnessing our expansion from local developments to complex projects across Singapore, Australia, the United Kingdom and Vietnam. The scale and speed of our global ambition today is remarkable.

David Ng Kit Cheong
Chief Financial Officer, Gamuda Land



A CAREER SHAPED BY PURPOSE

I'm honoured to have been part of Gamuda for the past 15 years. Throughout my journey with the Company Secretarial team, I've had the privilege of contributing to the Group's growth and governance, working alongside inspiring colleagues and being part of meaningful milestones.

I'm truly grateful for the experiences and relationships that have made my career both fulfilling and rewarding.

Growing with Gamuda has allowed me to do things the right way while helping it achieve its goals. Being part of a team that values integrity, collaboration and professionalism continues to inspire me every day. Looking back on my career with Gamuda, I am proud to have contributed to upholding strong corporate governance and compliance standards, while building trust and strong working relationships with the Board, Management and stakeholders over my many years of service.

Forzana binti Ab. Rashid
Manager, Secretarial, Gamuda Berhad



ENGINEERING RESILIENCE

The strong spirit of teamwork within the project team has consistently given me a deep sense of belonging in every project I've been involved in at Gamuda. Witnessing the company's evolution over the years, not only in Construction Management but across Project Management as a whole, has been truly meaningful. The supportive working environment has also given me opportunities to pursue professional qualifications, helping me grow both within the company and in the broader industry.

The Yen So Project in Hanoi, Vietnam, particularly the Yen So Sewage Treatment Plant (STP) and Pylon Relocation, will always be a source of pride and remain close to my heart. I am truly honoured to have been given the opportunity to lead the mechanical and electrical (M&E) works for what was, at the time of completion, the second largest sequencing batch reactor (SBR) sewage treatment plant in the world and the tallest transmission towers in Vietnam.

Under the leadership of Mr. Tan Siew Pen and Ir. Khor Thiam Chay, and backed by a team distinguished by exceptional teamwork, perseverance and resilience, we overcame the challenges of operating in an uncharted and demanding environment to achieve outstanding success. The Yen So STP even went on to win numerous awards. As a personal bonus from this remarkable journey, I can now speak Vietnamese.

Ir. Ts. Br. Shashi Kumar Lingam
Mechanical and Electrical Senior Manager, Gamuda Engineering



FROM IDEA TO IMPACT

What motivates my growth at Gamuda is the rare opportunity to transform ideas into real solutions alongside people and a mentor who shares my ambition. We operate in a culture where innovation isn't just a buzzword. We are given the space to prototype, test and deploy tech directly into global projects.

I take immense pride in developing the autonomous tunnelling boring machine (TBM), Tunnel Insight and the TBM Simulator, but more importantly, in the driven team behind them. Our best ideas often start organically, sparked when my mentor walks over with a cup of coffee to 'pour' out bold 'what-if' scenarios.

Ultimately, watching our products evolve alongside my team's confidence is deeply fulfilling. Combining engineering, AI, and human-centred design to see a team take full ownership of a complex system is exactly what makes this journey meaningful.

Liew Kit Shen
Technical Product Manager, Gamuda Technologies



