



THE MALAYSIAN WOOD EXPO (MWE) & TIMBER CONFERENCE 2025

11 Nov 2025 | Hall 1, Level 1 MITEC



Timber Design Revolution: Merging Tradition with Modern Innovation

Ar. Sarly Adre Sarkum

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Board Member – Lembaga Arkitek Malaysia

Past President – Malaysian Institute of Architects (PAM)

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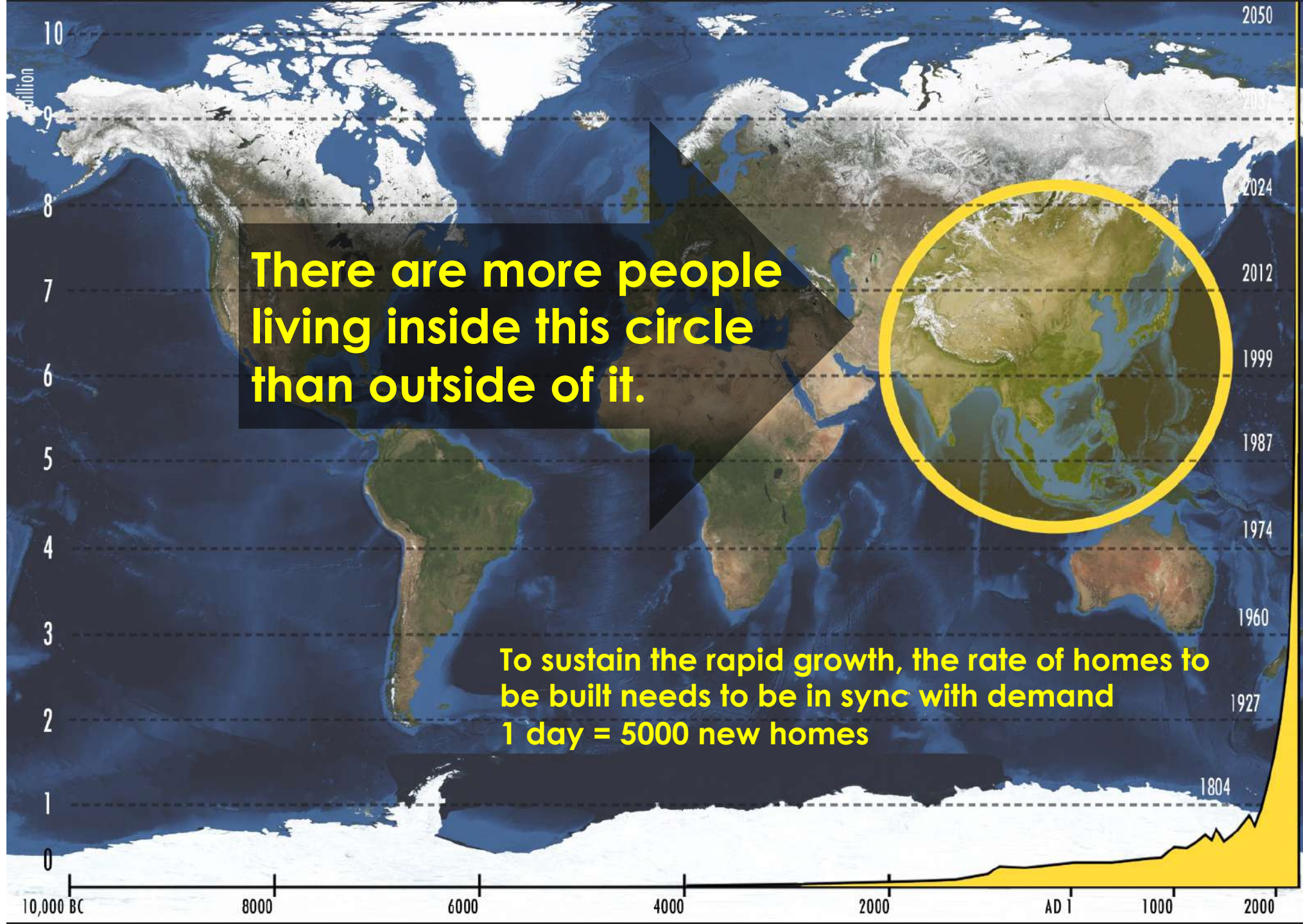


Presentation outline

- Intro
- Environmental Context
- Economic and technology context
- Why wood?
- Tradition and heritage
- Viability and Practical Challenges
- Why adoption is so low - Malaysian unique challenges
- Case studies
- Way forward – the practical route
- Timber futures



**>> 70%
of the
world's
populat
ion will
be
living in
Asia**





MALAYSIA'S INTERNATIONAL GREEN BENCHMARK



16 *years*

OF GREENING MALAYSIA
9 MAY 2025

GREENING MALAYSIA ONE BUILDING AT A TIME

300

MILLION SQUARE FEET
OF CERTIFIED GREEN BUILDINGS

The logo for the Green Building Index, featuring a stylized green leaf icon to the left of the text "greenbuildingindex" in a bold, sans-serif font.

Officiated by

YB TUAN NGA KOR MING
MINISTER OF LOCAL GOVERNMENT DEVELOPMENT





As of July 2025,

758 Projects Certified

(1,395 Projects applied)

30.8 Million Square Meters

(332.1 Million sqft)

1,960,000 tCO₂E/Annum





GBI PROJECTS REGISTERED BY STATES/TERRITORIES

GBI Project **Registered** - by State/Territory



GBI Project **Rated** - by State/Territory



Timber and the Green Building Index



- **Materials & Resources (MR):**
 - Embodied carbon reduction and circular economy
 - Responsible sourcing and reuse potential
- **Energy Efficiency (EE):**
 - Thermal performance, reduced operational energy
 - Lightweight structure = lower foundation energy cost
- **Indoor Environment Quality (IEQ):**
 - Biophilic comfort, humidity regulation, psychological wellness
 - Acoustic absorption and natural scent contribution
- **Innovation & Design (ID):**
 - Carbon-positive architecture and AI-BIM integration for design optimization



Ref 1
Concrete Slabs on Steel Deck;
Steel Frame; Concrete Cores



Ref 2
Concrete Flat Slab;
Concrete Cores



Timber 9
Timber Floors; Steel Frame;
Concrete Cores



Timber 5
Timber Post, Beam & Plate;
Concrete Cores



Timber 8
Timber Floors; LGM Framing;
Steel Frame Podium

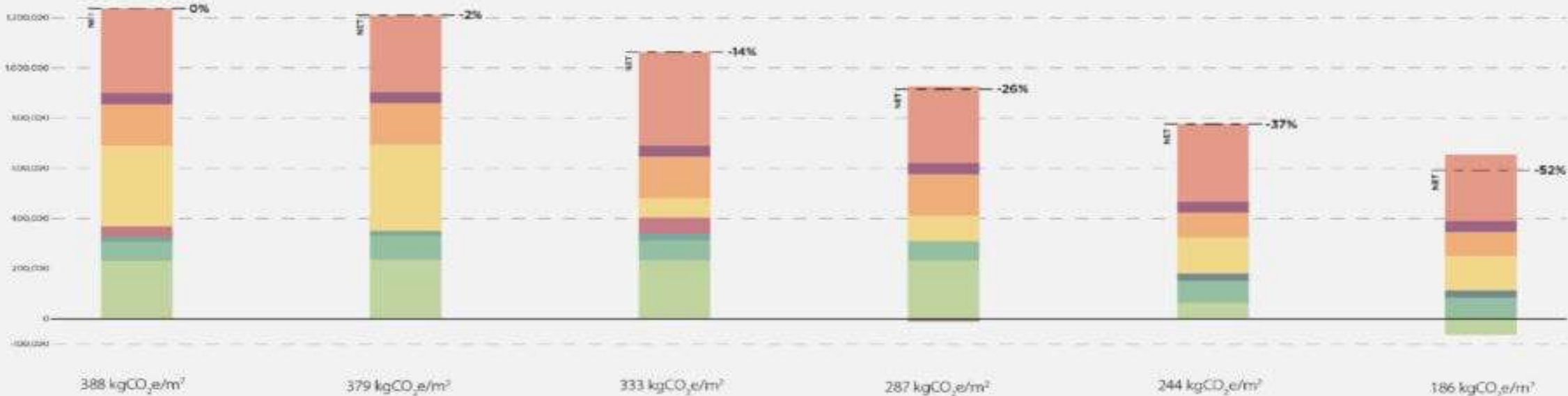


Timber 7
Timber Floors & Shear Walls;
Steel Frame Podium

Building Mass



Global Warming Potential (kgCO₂e)

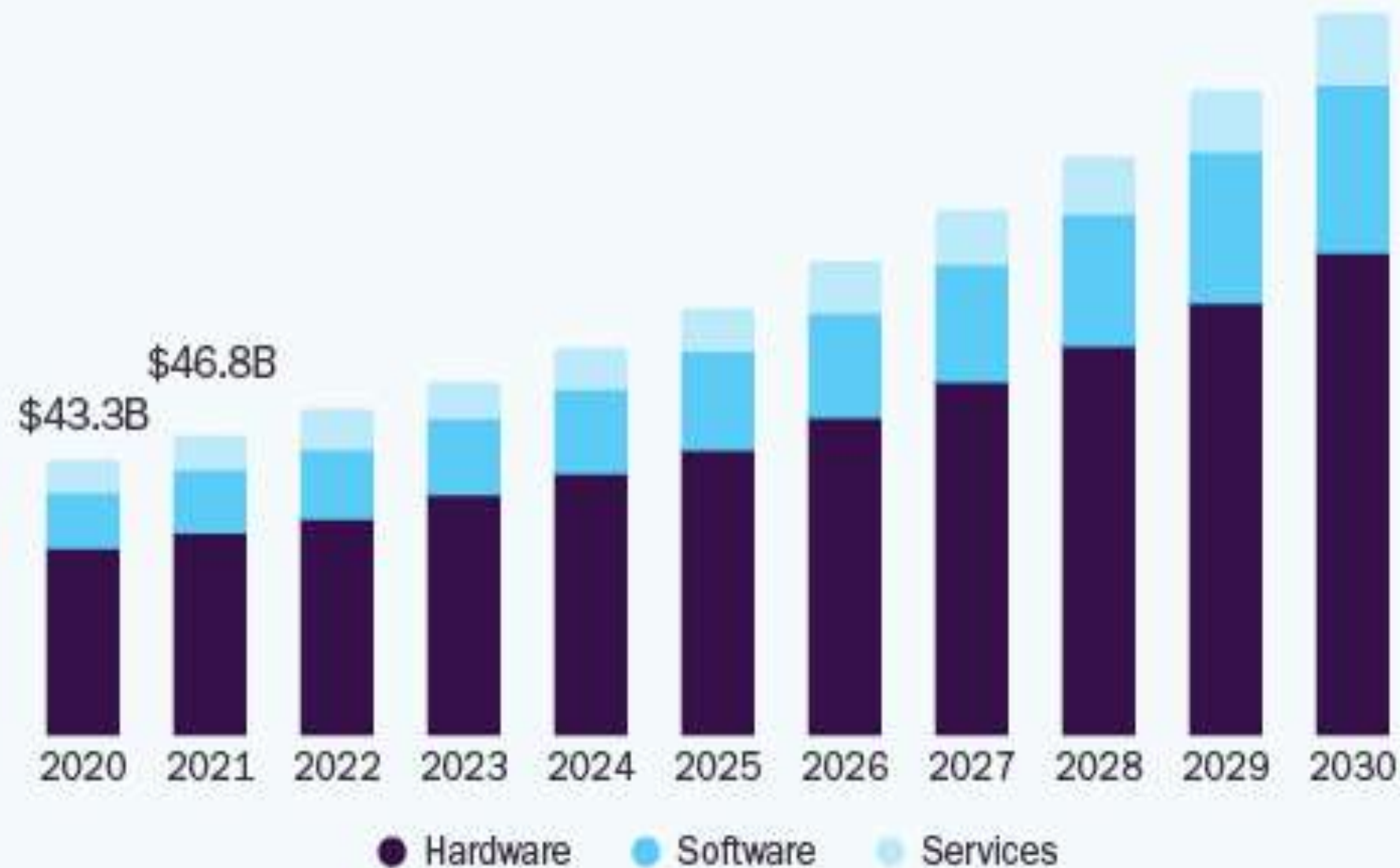


GLOBAL WARMING POTENTIAL & MATERIAL MASS
per building assembly

The total global warming potential (GWP) of each option is shown with a breakdown by building assembly. The Ref 1 and Ref 2 options have the highest GWP, with the bulk impact embedded in the floor slabs. Timber 9 offers a slight reduction in GWP with the savings realized in the floor slabs. Timber 5, a post beam and plate option, offers a relatively typical approach to building with timber, showing savings in floor slabs, beams and columns. Since Timber 8 and 7 are cellular approaches with load-bearing walls, these options included steel podiums to accommodate the ground floor program. Timber 8 shows how a hybrid approach with light gauge metal yields GWP savings in floor slabs, structural walls and exterior walls, despite the addition of the podium. Lastly, Timber 7 emphasizes how a completely cellular CLT timber approach yields impressive reductions in nearly every category.

U.S. Data Center Market

Size, by Component, 2020 - 2030 (USD Billion)



GRAND VIEW RESEARCH

10.7%

U.S. Market CAGR,
2023 - 2030

Source:
www.grandviewresearch.com

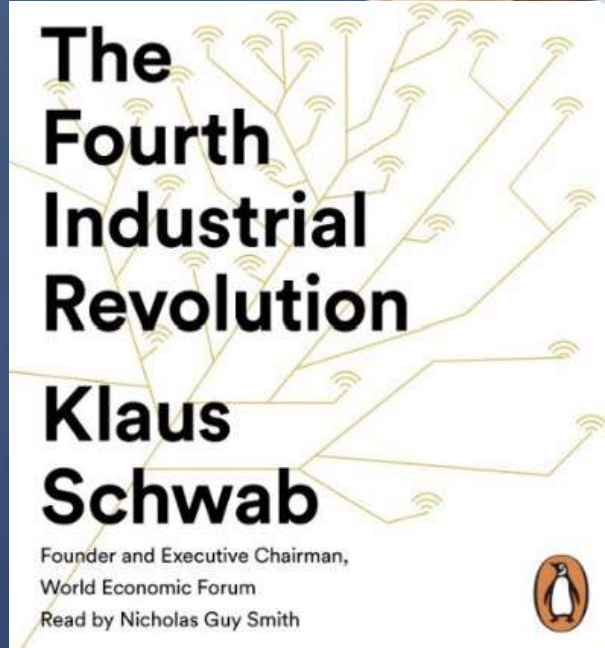


GBI DATA CENTRE VERSION 2.0 OFFICIAL LAUNCH

Officiated by

YB TUAN LIEW CHIN TONG

MINISTER OF INVESTMENT TRADE AND INDUSTRY



Context



1st IDR

80 yrs

2nd IDR

44 yrs

3rd IDR

20 yrs

4th IDR

10 yrs



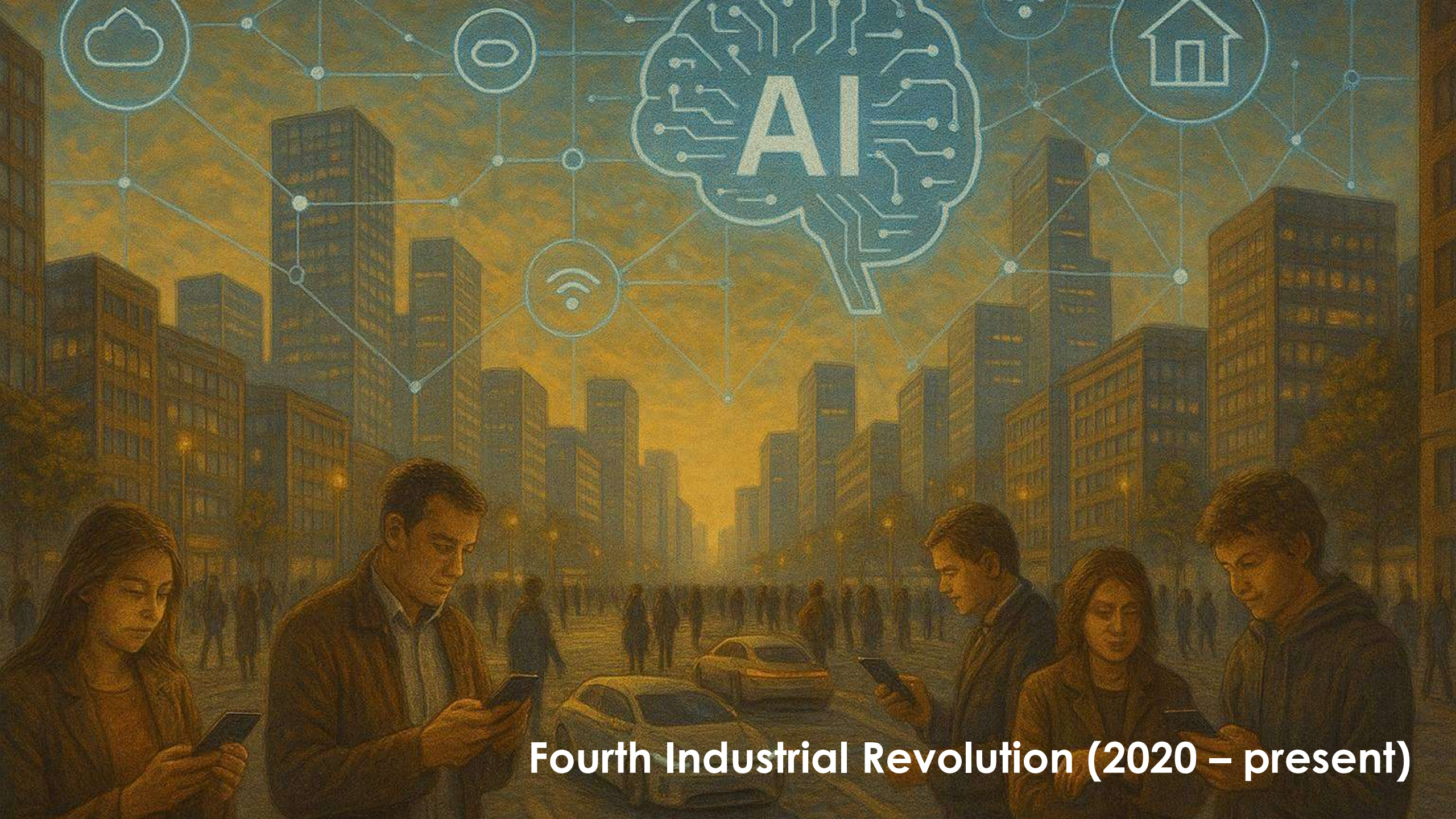
First Industrial Revolution (1760 – 1840)



Second Industrial Revolution (1870 – 1914)



Third Industrial Revolution (1980s – 2000s)



Fourth Industrial Revolution (2020 – present)



Are we missing the point?

Context



1st IDR

80 yrs

2nd IDR

44 yrs

3rd IDR

20 yrs

4th IDR

10 yrs

IT TOOK EACH OF THEM TO REACH 100 MILLION USERS

60 days



38 Years



7 Years



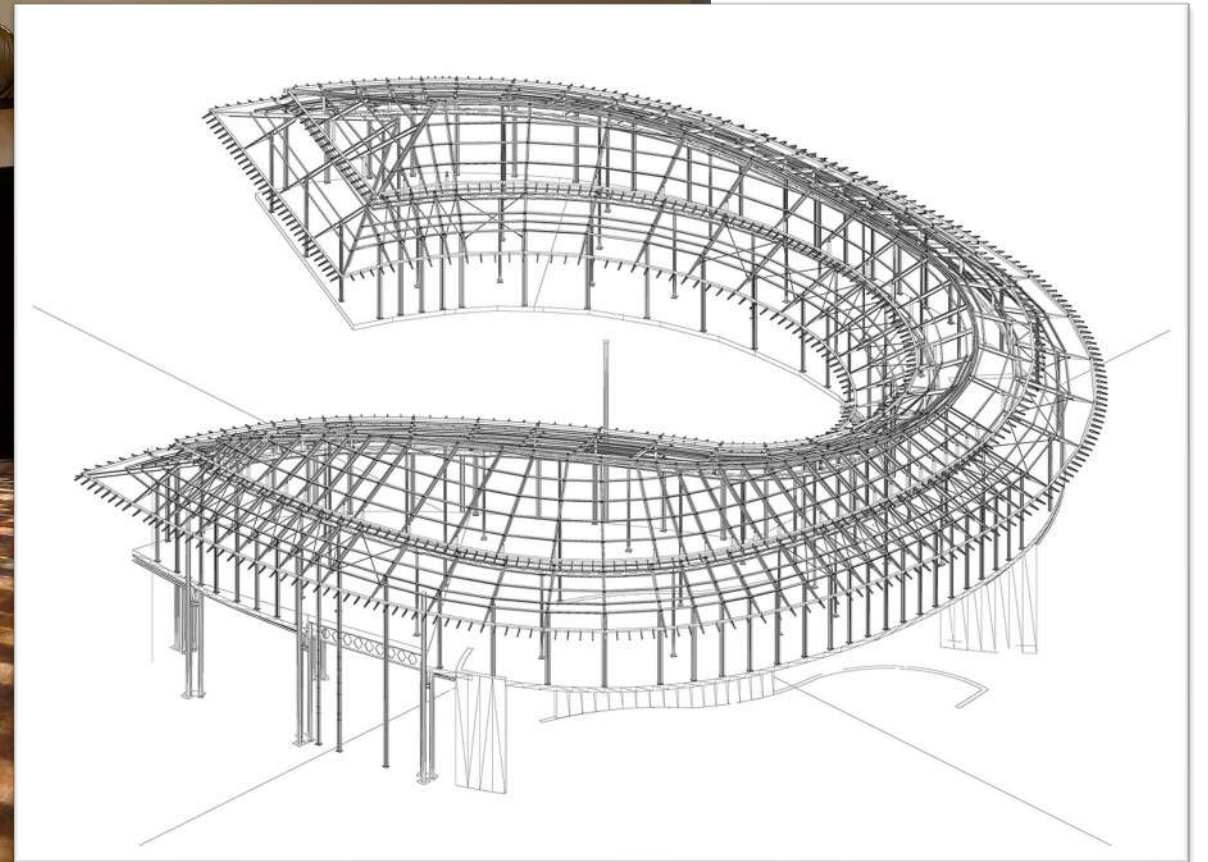
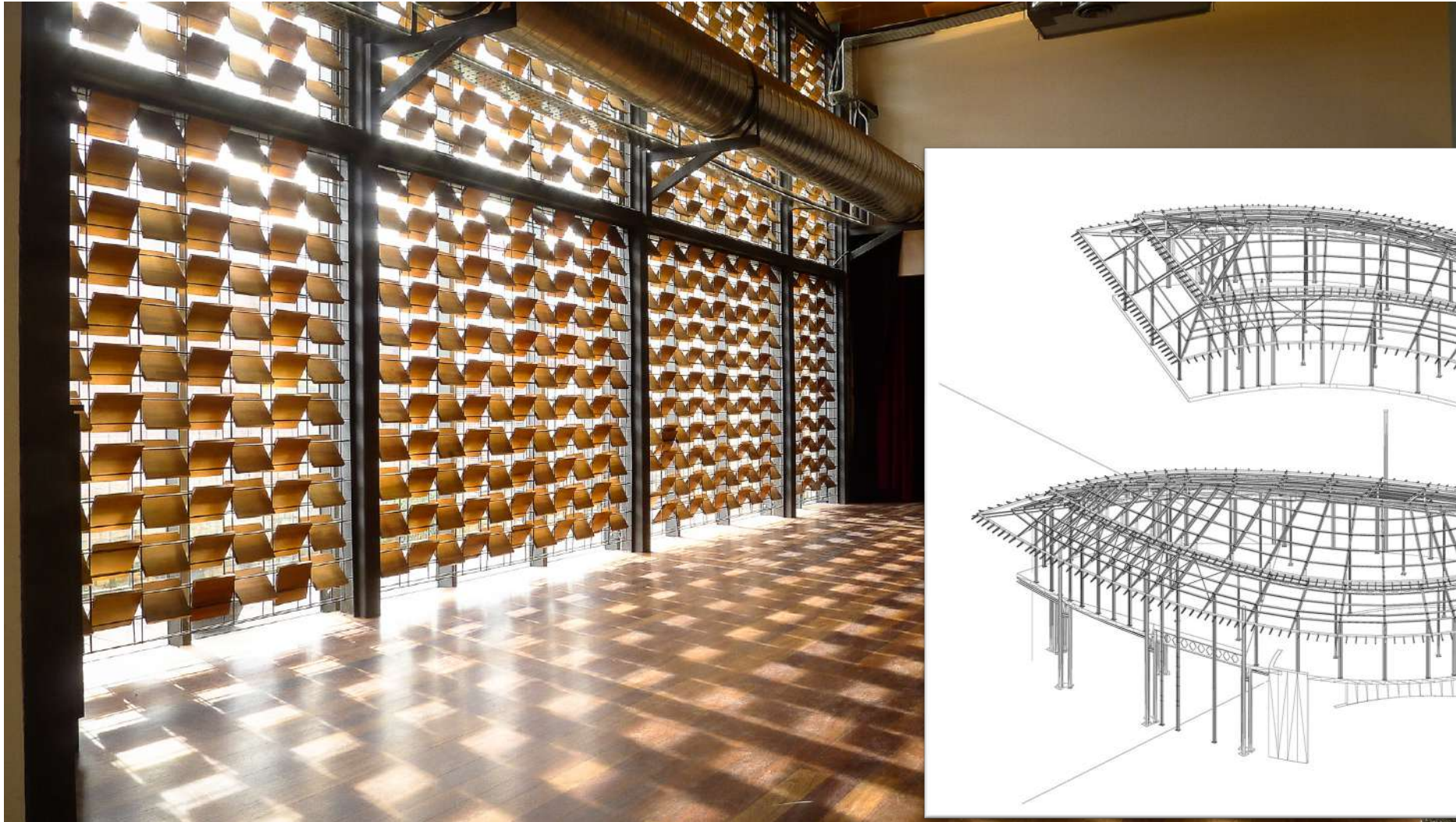
Are we missing the point?

Merging tradition and Modern Timber

- Our ancestors **understood timber intuitively** - its rhythm, breath, and warmth.
- Today's engineers **understand it scientifically** - its stress curves, moisture control, and carbon profile.
- The future Malaysian architect must **understand it holistically** - as both culture and technology.

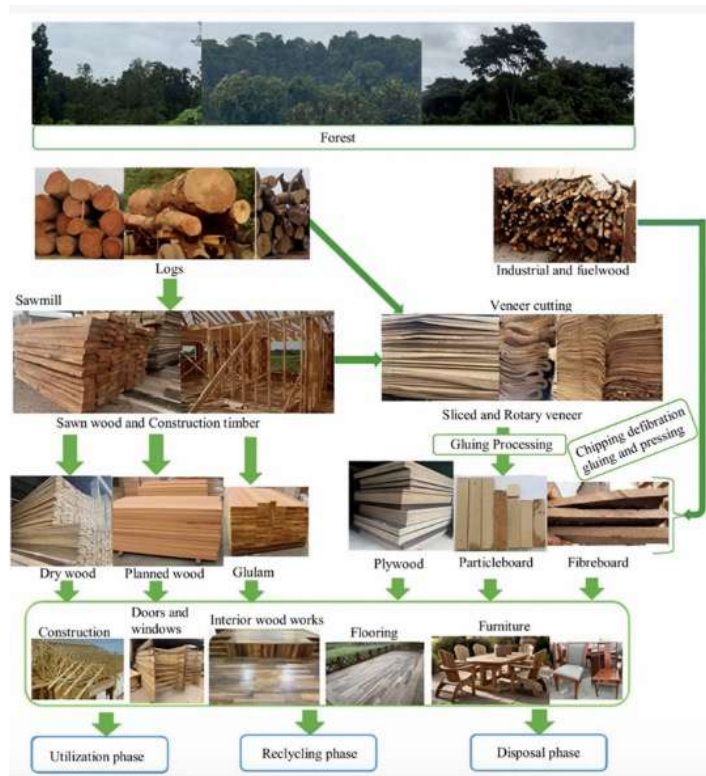
"The true revolution is not abandoning tradition - it is upgrading it."

A new way to look at things

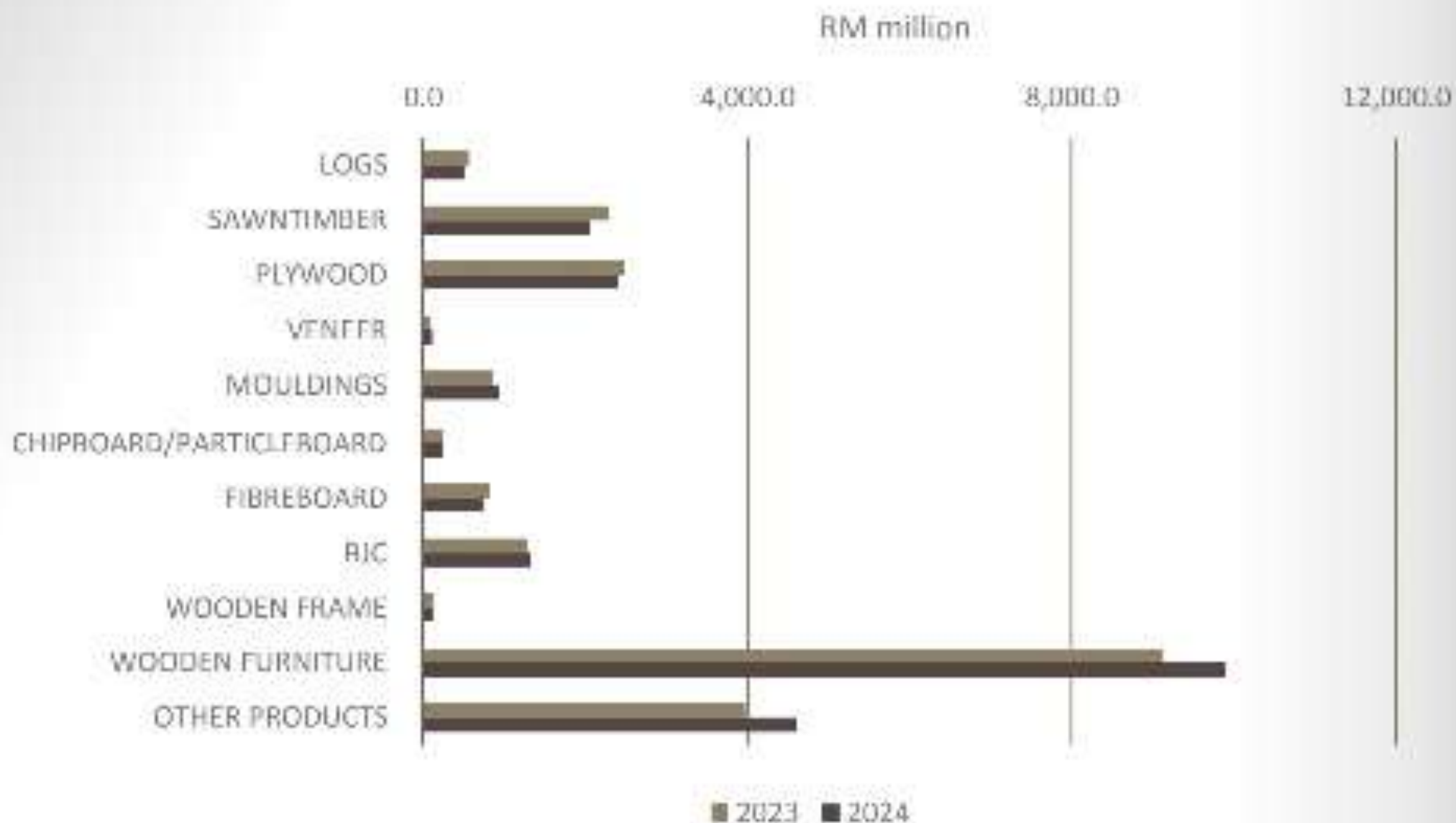


New Timber

Major types of engineered wood products and their abbreviations.



MALAYSIA: EXPORT OF TIMBER AND TIMBER PRODUCTS 2023-2024





MALAYSIA: EXPORT AND IMPORT OF TIMBER AND TIMBER PRODUCTS



Sources: DOSM & MTIB Note: (1) Percentage change based on year-on-year. (2) Due to rounding off numbers, the percentage change may not reflect the absolute figures.

Shorea Resort, Negeri Sembilan



MTC
MALAYSIAN TIMBER COUNCIL
JANUARY -
AUGUST 2025



Malaysia's Timber Paradox: Why Adoption Remains Low

1. Cost and Risk Aversion
2. Perception and Cultural Bias
3. Knowledge Gap Among Practitioners
4. Supply Chain and Material Constraints
5. Regulatory and Code Limitations
6. Climate and Durability Concerns

1. Cost and Risk Aversion

- Developers still see timber as “**non-standard construction**” — meaning higher insurance premiums, longer approval times, and uncertain resale value.
- **Bankers and insurers** are conservative — absence of actuarial data on timber buildings results in unfavourable financing terms.
- **Contractors** prefer familiar systems; retraining labour for precision timber assembly or CNC fabrication incurs short-term cost.
- Not just Material cost – **Its cost for all** consultants, labour, contractors, developer

Building Material Prices May 2025



A COLLABORATION BY



BCISM is a joint-venture between Construction Industry Development Board Malaysia (CIDB) and Royal Institution of Surveyors Malaysia (RISM), mandated as the main service provider of centralised building cost information for the industry and its stakeholders.



Disclaimer

Prices presented are extracted from N3C BMP weekly data. Users will have to use their professional judgement to get the best reference out of the pricing information provided. For more frequently analysed, updated and wider range of data, visit n3c.cidb.gov.my

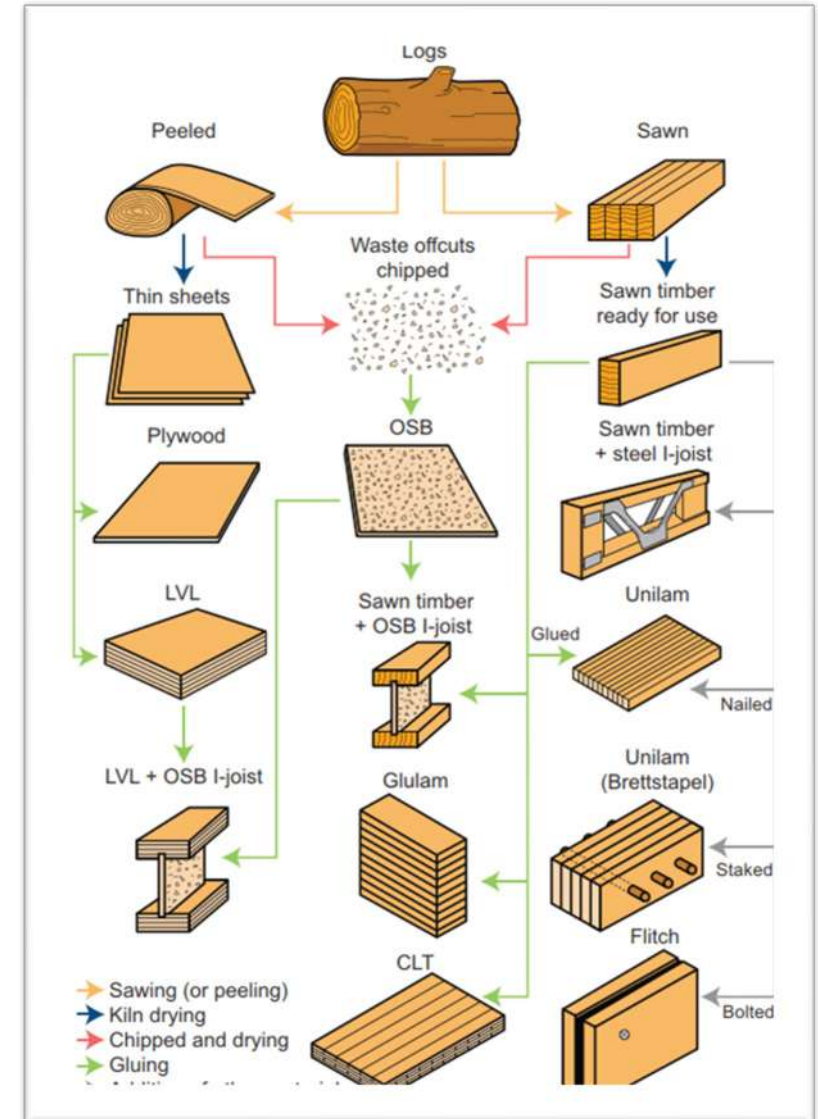
2. Perception and Cultural Bias

- In the public mind, timber equals kampung - **nostalgic, temporary, or inferior.**
- Modern urban Malaysians associate **concrete with permanence and prestige.**
- The **psychological barrier** is as strong as the technical one: even when data shows CLT's 2-hour fire resistance or superior seismic performance, perception lags behind proof.
- **Only for special buildings** like resorts, wedding halls etc. Only for decoration and interior. Not bona fide material



3. Knowledge Gap Among Practitioners

- Many **architects, engineers, and contractors** are unfamiliar with modern timber engineering principles - load paths, connections, moisture protection, and fire detailing.
- **University curricula** seldom teach engineered timber systems or life-cycle carbon accounting, resulting in a generation of professionals who see timber as “old-fashioned.”
- **Lack of demonstration projects** compounds the problem - without built precedents, authorities and clients hesitate.
- No time to explore **new methodologies and techniques**. Resource intensive on staff etc



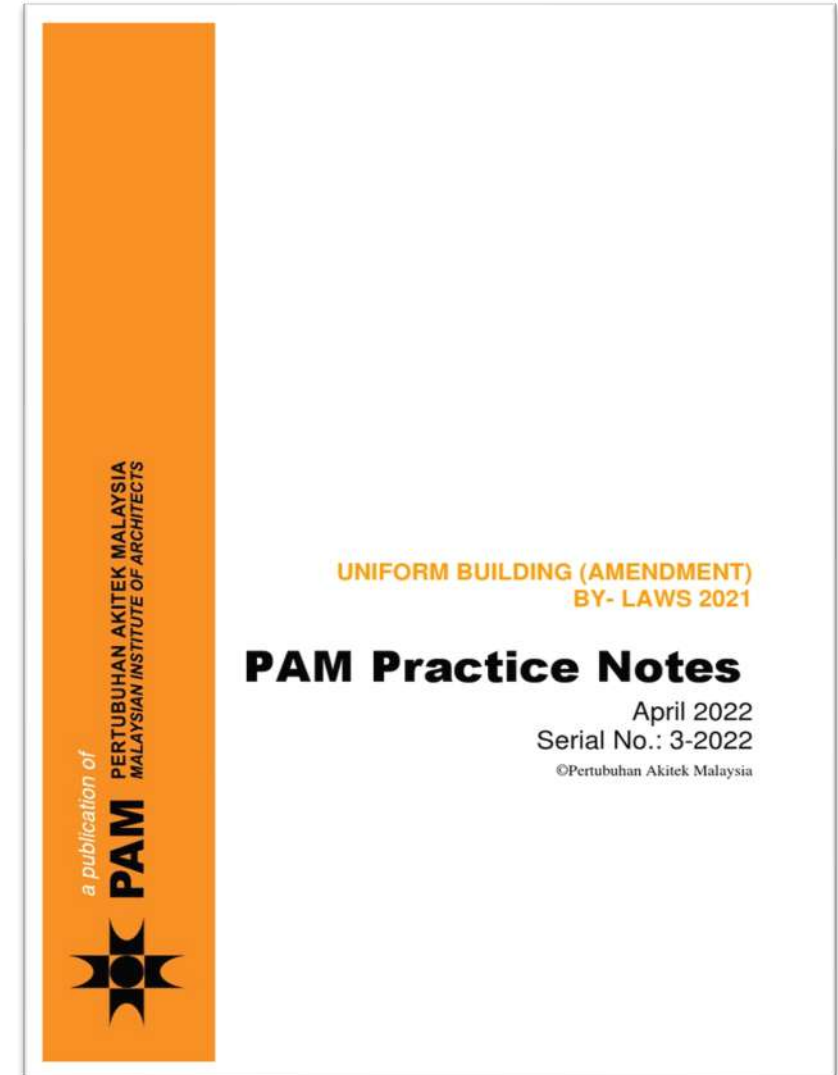
4. Supply Chain and Material Constraints

- Malaysia's tropical hardwoods are dense and difficult to machine; **mass timber manufacturing** (CLT, LVL) relies on **softwoods** or engineered bamboo.
- **Limited domestic production** of CLT panels or Glulam beams means imports are needed, inflating costs by 30–50%.
- **Fragmented forestry and processing sector** - small mills, inconsistent grading, and lack of certification continuity hinder large-scale adoption.
- **Even with MTCS and PEFC**, architects often face difficulty proving full traceability.



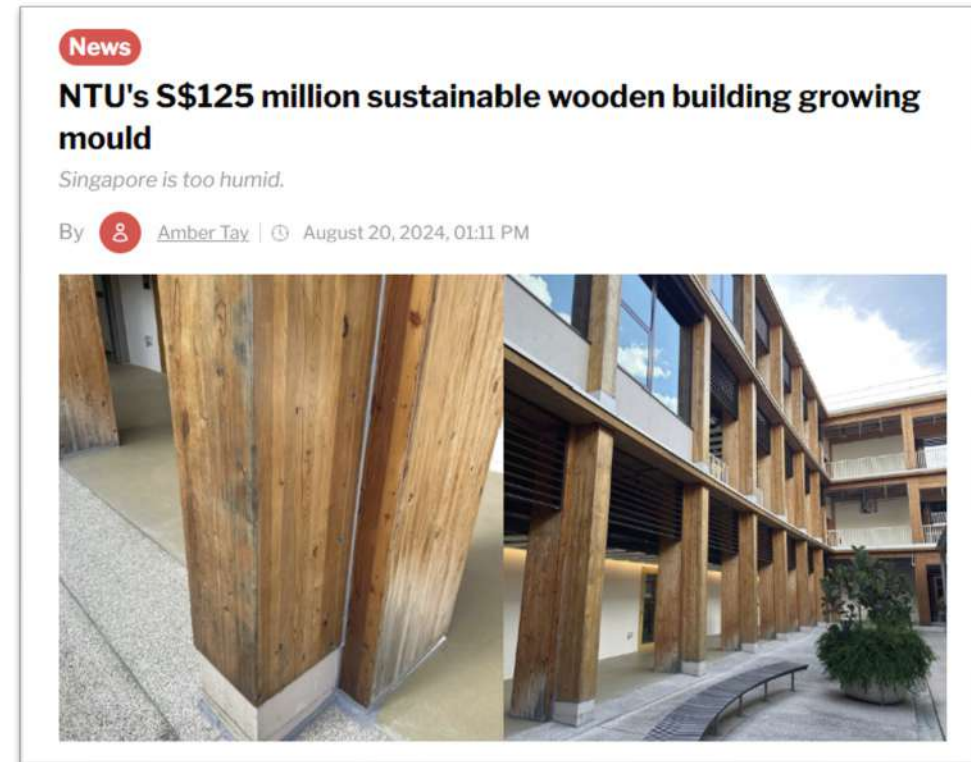
5. Regulatory and Code Limitations

- **Building by-laws and fire codes** (UBBL 1984, Fire Safety Guidelines) are still written for *non-combustible materials* like concrete and steel.
 - There's no clear pathway for *performance-based approval* of engineered timber such as CLT or GLT.
 - Authorities like BOMBA and DOSH still classify timber as combustible by default, discouraging approval of large-scale timber buildings.
- **Absence of prescriptive standards** — Malaysia lacks harmonised local standards for mass timber design, fabrication, and fire testing equivalent to Eurocode 5 or the Australian standards.
- “Regulatory inertia is seen perhaps the single biggest bottleneck in Malaysia’s timber evolution.”
Actually it is a convenient excuse



6. Climate and Durability Concerns

- Many **architects, engineers, and contractors** are unfamiliar with modern timber engineering principles - load paths, connections, moisture protection, and fire detailing.
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So what is the way forward?

Core Pillars: Awareness & Flagship Projects

Main Pillar	Key Actions	Lead Stakeholders	Intended Outcome
1 National Awareness & Public Confidence	<ul style="list-style-type: none">• Launch national campaign – “Timber Reimagined: The Malaysian Wood Revolution.”• Promote timber as modern, innovative, carbon-smart.• Run exhibitions, documentaries & social media storytelling.• Use architecture festivals & public showcases.	MTC, MTIB, MGBC, PAM, GBI, KPKT, MITI	Public mindset shift – from “timber is old-fashioned” to “timber is the future.”
2 Flagship Demonstration Projects	<ul style="list-style-type: none">• Develop GBI Platinum Mass Timber Buildings (visitor centres, schools, eco-stations).• Establish a Timber Innovation Hub as R&D showcase.• Launch PAM Timber Design Competitions for towers & pavilions.• Use projects as living labs to test standards & fire codes.	MTC, KPKT, MTIB, CIDB, PAM, MGBC, State Govts	Tangible proof of performance. Confidence through visibility. National pride in timber architecture.

So what is the way forward?

Core Pillars: Awareness & Flagship Projects



Brock Commons, the World's Tallest Mass Timber Building

53 meters high in the Vancouver skyline. The 18 story building, designed by Acton Ostry Architects – erected 70 days

So what is the way forward?

Enablers: Policy, Industry & Education

Enabler	Key Actions	Lead Stakeholders	Intended Outcome
3 Policy & Regulatory Reform	<ul style="list-style-type: none"> Update UBBL & MS to include engineered timber (CLT, GLT, LVL). Introduce performance-based fire design. Offer fast-track approvals & tax incentives for certified projects. 	KPKT, MTC, CIDB, DOSH, BOMBA, SIRIM, GBI	Regulatory clarity and streamlined approval processes.
4 Industry & Supply Chain Integration	<ul style="list-style-type: none"> Establish CLT/GLT production hubs (Sabah, Sarawak, Johor). Strengthen MTCs-PEFC traceability. Create Timber Design Data Bank for BIM & LCA resources. Promote digital forest-to-building tracking. 	MTIB, MPMA, MTC, timber producers	Self-sustaining, certified, and export-ready timber ecosystem.
5 Education & Capacity Building	<ul style="list-style-type: none"> Embed Mass Timber Design in university curricula. Launch GBI-PAM CPD courses for professionals. Create university timber pavilions as design-build labs. 	MTC, PAM, LAM, IEM, MOHE, Universities, GBI	A new generation of architects fluent in timber innovation and sustainability.

So what is the way forward?

Enablers: Policy, Industry & Education



1ST PLACE & DIGITAL PRIZE WINNER (TIED)

TIMBER COMMONS

FROM / Toronto, Canada

TEAM / Ben Feldman, Carol Cochrane, Carol Phillips, Jaewon Kim, Jay Zhao, Jillian Weinberger, Kayley Mullings, Luis Quezada, Phil Silverstein, Will Klassen



So what is the way forward?

Enablers: Policy, Industry & Education

TYPICAL FLOOR PLAN 1

TYPICAL FLOOR PLAN 2

KITCHEN/DINING ROOM

LIVING ROOM

BEDROOM

Using the **standard grid module** of 3.05m by 7.6m, we designed 1-, 2-, and 3-bedroom units that assemble into complete floor plates in varied configurations. **Mass timber elements remain exposed**, providing the biophilic warmth of natural wood. Kitchen/washroom modules align with service cores, opening the perimeter to light and air in all living and bedroom spaces. Each home incorporates a Juliet balcony, while private balconies are deliberately omitted. Instead, **exterior space is consolidated into shared terraces**, fostering social connection and ensuring equitable access to outdoor amenity for all residents.

UNIT MIX

- 1-BEDROOM UNITS
- 2-BEDROOM UNITS
- 3-BEDROOM UNITS

PRIVATE LIVING

COMMUNAL SPACES DISTRIBUTION Alternative 1

COMMUNAL SPACES DISTRIBUTION Alternative 2

COMMUNAL SPACES DISTRIBUTION

Generous communal spaces are the heart of the **Timber Commons**. Using the same modular grid, the system supports both interior and exterior gathering areas that can be arranged in many configurations. In this design, **amenities are distributed vertically** in six zones, each pairing interior and exterior functions. These zones combine pragmatic uses, such as laundry, with spaces dedicated to socializing, recreation, and play. Together, they create a true **vertical village**, offering variety from floor to floor and encouraging frequent, casual encounters between neighbors. The richness of these shared environments allows unit floorplans to be efficiently compressed and private balconies to be eliminated, helping reduce per-unit costs. From the outside, these common spaces are expressed as luminous openings within the otherwise ordered grid of the façade, celebrating the **social life at the core of the project**.

OUTDOOR AMENITY

INDOOR AMENITY

OUTDOOR AMENITY

COMMUNAL SPACE OPTIONS

BARBECUE & KITCHEN
A communal indoor and outdoor space with a kitchenette, grill, and tables. Neighbors can cook, share meals, and build connections through food in this shared cooking and dining space.

DOG WASH & HOTDESK
A pet-friendly hub combining a dog wash station and flexible hotdesks, supporting pet and pet-owner needs while offering residents a place to work or rest.

PARTY & GAME ROOM
A playful gathering space with tables, various games, and a bar/room. A lively shared space for celebrations, casual fun, and bonding with friends and neighbours alike.

LAUNDRY & WORK STATIONS
A functional laundry space paired with working stations, allowing residents to rest, study, or work productively while waiting for their laundry cycle to complete.

LAUNDRY & TABLE TENNIS
A social space where laundry meets leisure, encouraging neighborly interaction and fun as residents complete their everyday household chores.

COMMUNAL LIVING

So what is the way forward?

Enablers: Policy, Industry & Education

Outcome Area	Strategic Focus	Lead Stakeholders	Resulting Impact
6 Cultural Transformation	<ul style="list-style-type: none">• Reframe timber as national identity — heritage + innovation.• Engage local artisans & indigenous craftspeople.• Introduce Timber Design Awards & storytelling campaigns.	PAM, MGBC, Tourism & Cultural Ministries, Media	Emotional reconnection to timber as part of Malaysian identity.
7 Sustainability & Carbon Economy	<ul style="list-style-type: none">• Integrate carbon credits for timber in Malaysia's NDC.• Mandate LCA for major projects.• Enable digital carbon traceability across the supply chain.	MGBC, GBI, MITI, KeTSA, Carbon Market Agencies	Timber positioned as carbon-positive building solution in national policy.

Most People think the rarest material would be gold or maybe diamonds, but that's absolutely not true because gold and diamond is so common that it could be found anywhere in the universe. There's even entire planets that are made entirely of gold and diamond. But here's the strangest part. If you traveled the entire universe at the speed of light, you would be shocked how much gold and diamond there is. But it would be a miracle if you came across any wood.

That's because wood comes from life.

And even with our advanced technology, we still don't know any other planet in the entire universe that would have wood. Black holes can bend spacetime. Wormholes can shrink distances. Supernovas could scatter elements across galaxies, but none of these cosmic forces can create a singular tree. It's so strange that the wooden chair you're sitting on or the pencil on your desk is rarer than diamonds and is actually one of the rarest material in the entire Universe.

Neil deGrasse Tyson is shown from the chest up, wearing a dark suit, a white shirt, and a yellow tie with a small microphone clipped to it. He has a mustache and is gesturing with his right hand, pointing his index finger upwards. The background is a blurred, reddish-brown wall.

**Neil deGrasse
Tyson**

astrophysicist and writer

THANK YOU

“We don’t have to wait for the world to teach us how to build with timber - our ancestors already did. Now, with innovation, we can do it again - cleaner, stronger, and more sustainably.”

Ar. Sarly Adre Sarkum, MWE Timber Conference 2025

VanaVasa Resort Janda Baik