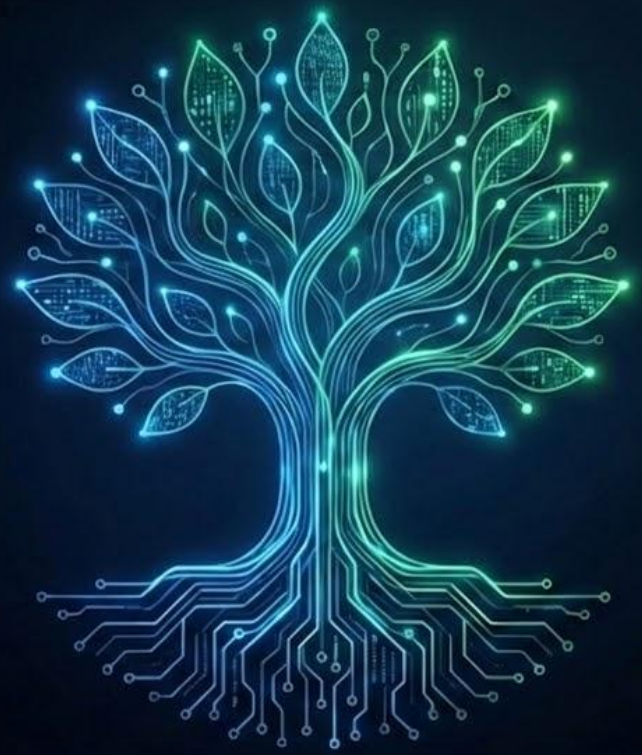
PANTAS



TECHNOLOGY & SUSTAINABILITY:

How AI Enables Sustainability at Scale

Max Lee, CEO & Co-Founder
Yuan Shen Ng, Head of Applied Data & AI

Six Lenses in the Room

Risk / ERM

Sustainability

Finance / Audit

Board / Senior Mgmt

Legal / CoSec

Insurance / D&O

Today's session is designed for all six perspectives

What You'll Leave With

ESG Data Automation

Carbon & Energy

Climate Scenario

Third-Party / Supply Chain Risk

Controls-first = validations + approvals + audit trails + model governance

Plus: 6-step adoption playbook to operationalise AI for sustainability

The Real Problem: Messy Sustainability Data

BEFORE

- Fragmented data sources
- Manual stitching in spreadsheets
- Late surprises at reporting time
- No audit trail

→

AFTER

- Controlled data pipeline
- AI-assisted validation
- Real-time visibility
- Full audit trail

Risk Lens: Completeness • Accuracy • Traceability

ESG Data Automation: Evidence-First

Source Document
Bills, reports, logs

→

AI Suggestion
Classify, extract, map

→

Human Review
Validate & approve

→

Posted to Ledger
With full audit trail

Key Capabilities:

- **AI-assisted capture:** Classify documents, extract data points, map to metrics
- **Auto-checks:** Flag missing data, outliers, duplicates automatically
- **Evidence attachment:** Source docs + reviewer notes linked to every entry

Controls-First: Maker–Checker + Audit Trails

"AI proposes; humans dispose"

AI Proposes

Suggestions based on patterns and rules. Never auto-posts.

Humans Approve

Maker–checker workflow. Clear accountability.

Full Audit Log

Who, what, when, why. Generated, not assembled.

Assurance pack generated, not assembled

From Bill to Board-Ready (60-Second Walkthrough)

1

Bill Ingested

Document uploaded, AI suggests account mapping

2

Spike Flagged

Unusual value auto-flagged for review

3

Reviewer Note

Approver adds context, clears flag

4

Posted + Report

Entry posted, report pack auto-updates

Complete cycle <60 seconds with full audit trail

Carbon & Energy Tracking: Scopes 1/2/3

Scope 1
Direct emissions
(on-site fuel, fleet)

Scope 2
Purchased energy
(electricity, steam)

Scope 3
Value chain
(suppliers, transport)

Key Principles:

- **Treat emissions as operational reality:** Not just compliance
- **Data integrity** = Activity data + Emission factors + Change control
- **Board view:** Hotspots, variances, and trends at a glance

Scope 3 & Suppliers: Data Quality as Risk

Tier by Materiality

Focus effort where emissions are highest

Score Data Quality

Primary vs estimated vs modelled

Document Assumptions

Allow estimates with clear rationale

Contract & Escalate

Embed data requirements in supplier terms

Third-Party & Supply-Chain Risk Monitoring

All Supplier Signals

↓

Materiality Filter

↓

Priority Queue

Continuous Signals
Gaps, anomalies, regulatory changes

↓

Materiality Filters
Reduce noise, focus on what matters

↓

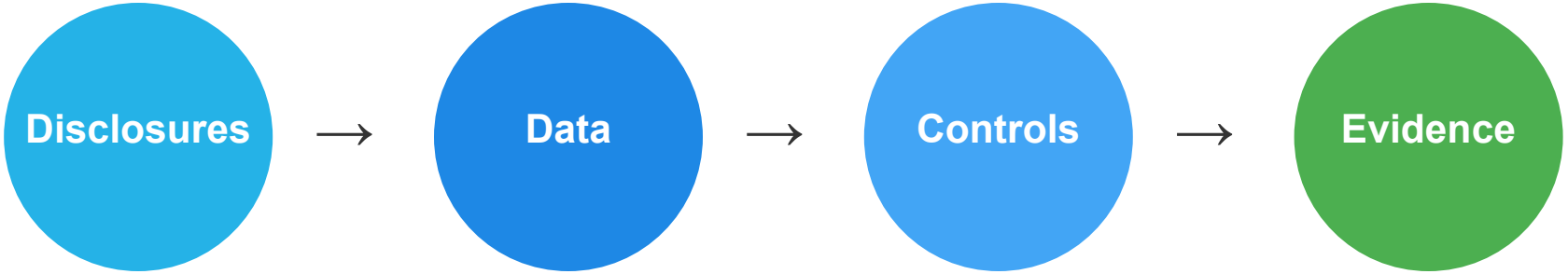
Triage → Escalation → Board
Clear pathway for action

Climate Scenario Analysis – Board-Ready

Scenarios	→	Business Impacts	→	Decisions
NGFS, IEA, custom physical & transition		Cost, capex, demand, disruption quantified		Aligned to risk appetite, actionable insights

- **Translate scenarios into business language:** Not just climate science
- **Stress-test:** Cost increases, capex requirements, demand shifts, supply disruption
- **Align outputs to risk appetite:** Board can see what's within tolerance and what isn't
- **Outputs feed KRIs, risk appetite thresholds, and board exception reporting**

IFRS S1/S2 Aligned Readiness



- Assign owners at each step
- Repeatable process for external assurance
- Focus on readiness pathway, not perfection

Adoption Playbook: 6 Steps

1	2	3	4	5	6
Prioritize	**Redesign**	**Upskill**	**Automate**	**Govern**	**Report**
P0/P1/P2 use cases	Workflows for AI	Train your teams	Checks + approvals	Model risk controls	Exceptions to board

Progressive implementation: Start small, prove value, scale with confidence

Model Risk Governance for Sustainability AI

Policy

Define allowed vs prohibited uses

→

Validate

Sampling, thresholds, testing

→

Monitor

Drift detection, incidents, rollback

↺

Continuous Improvement

Pantas Guardrails: How We Adopt AI Internally

Internal AI Workshops

Upskilling teams on modern AI tooling

Agents for ESG

Automation & analytics powered by AI agents

Quality by Design

Traceability built into every workflow

PCAF Accreditation

First in Asia, 4th globally

PCAF Accreditation: Partnership for Carbon Accounting Financials
Pantas is the **first software company in Asia** and **fourth globally** to receive this accreditation

Board-Ready Checklist

1. Owner + evidence standards defined
2. Maker–checker workflow + audit trail
3. Exception queue with escalation path
4. Model governance framework
5. Regular cadence & oversight

"AI proposes; humans dispose"

Q&A

Thank You