

The **AI-Ready** Plant Playbook

A field guide for plant managers, OT engineers, and operations leaders in Southeast Asia.

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01 The 5 questions before you “do AI”

THE GUT CHECK

After ten years on the floor, I've watched too many plants spend six figures on AI pilots that died quietly. Every one of them skipped at least one of these.

01 Can I name the exact problem I'm trying to solve?

“We want to use AI” is not a problem. “Spindle 4 keeps failing on Tuesday nights and reactive maintenance is bleeding 14% of OEE” is.

02 Do I already collect the data this AI would need?

If the answer involves “we'd have to install sensors first”, that's not an AI project. That's an OT project. Do that first.

03 Who on my team will own the model after the vendor leaves?

If nobody, the model dies in 90 days. Pick the human first, then the project.

04 What's the lowest acceptable accuracy for this to be worth doing?

95%? 80%? 70%? If you can't say upfront, you'll never know if the pilot worked.

05 If this works, what changes on the floor?

Concrete. New SOP. Different shift handover. Fewer call-outs at 2am. If nothing changes operationally, the model is just a dashboard.

02 The data readiness checklist

CHECKLIST

You can't AI your way out of bad data. Run this on your top three critical assets.

- ☐ **Sensor coverage:** vibration, temperature, current, pressure, flow as relevant
 - ☐ **OPC-UA, Modbus, or equivalent open protocol** available (not closed vendor format)
 - ☐ **Tag naming convention:** consistent and documented across PLCs
 - ☐ **Historian or time-series database:** at least 12 months retention
 - ☐ **Sampling rate:** at least 1Hz for vibration, 5–10s for process variables
 - ☐ **Network path:** OT network can reach an edge gateway or DMZ
 - ☐ **Data quality:** gaps under 5%, no clock skew across PLCs
 - ☐ **Maintenance log:** failures and PMs labeled with timestamps and asset IDs
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QUICK TAKE

Tick fewer than 5? You're not ready. That's not a setback. It's a six-month roadmap.

03 The team readiness checklist

CHECKLIST

The model isn't the project. The team is.

- ☐ **OT champion:** usually a senior maintenance or process engineer who'll work with the data
 - ☐ **IT bridge:** someone who can argue for OT data leaving the controls network safely
 - ☐ **Shift floor advocate:** operators who will use the AI's recommendations (or ignore them)
 - ☐ **Change owner:** authority to update SOPs when the AI changes how decisions are made
 - ☐ **Executive sponsor:** covers air for the team during the messy first 60 days
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QUICK TAKE

Missing the executive sponsor? The pilot will get killed at the first cost review.

The pattern I see in SEA plants: the OT champion exists, the IT bridge gets bolted on late, and the executive sponsor was promised but never showed up to a single review meeting.

Get all five in the room before week one, or postpone.

04 3 use cases that actually pay back in SEA

WHAT WORKS

Forget the chatbot demos. These are the wins I've seen actually clear ROI in 6–9 months in SEA plants.

01 Predictive maintenance on bottleneck assets

Pick the ONE machine where unplanned downtime hurts most. Spindles, motors, pumps. RUL forecasts beat calendar-based PM every time once you have 3–6 months of data.

02 Downtime forensics

Auto-classify why the line stopped. Most plants record stop reason as “operator selected dropdown.” AI on shift-handover notes plus sensor data finds the real causes ~70% of the time.

03 Energy optimisation

With electricity tariffs rising across Malaysia, Indonesia, and Vietnam, AI-driven load balancing on chillers, compressors, and ovens has the cleanest ROI calc you'll ever present.

QUICK TAKE

What's NOT on this list yet, in my view: generative AI for SOPs. Quality vision (it works, but capex for cameras kills the ROI in many SEA plants). Robotics: different game, different capex.

05 The 90-day pilot framework

THE FRAMEWORK

If you can't run it in 90 days, you'll lose air cover. Here's the timeline I'd hold any vendor to.



WEEKS 1-2

Scope

- Pick one asset, one problem, one success metric
- Confirm data is already collected: don't pilot on data you don't have
- Sign data-access NDA with the vendor

WEEKS 3-6

Build

- Vendor pulls 6–12 months of historical data
- First model trained, baselined against current process
- Performance threshold documented and signed

WEEKS 7-10

Shadow mode

- Model runs in parallel with the current process
- No actions taken on its predictions yet
- Operators see outputs but follow existing SOP

WEEKS 11-12

Decision gate

- Did predictions match reality?
- Was anyone notified before failures?
- Cost-benefit on extending vs killing, written, with sponsor sign-off

QUICK TAKE

If the answer at week 12 isn't “obviously yes, scale it”, kill it. A killed pilot is data. A zombie pilot is a tax.

06 When to walk away from a vendor

RED FLAGS

You're buying a partner, not a product. Pick someone who'd still answer the phone at 2am.

- ✗ **“We can do this with no historical data.”** They'll sell you a generic model dressed up as bespoke.
 - ✗ **“Our AI is proprietary, we can't tell you what it does.”** Black box equals no trust on the floor.
 - ✗ **They want to own your model weights forever.** Walk.
 - ✗ **They don't ask to talk to your maintenance team in week one.** They'll be selling, not solving.
 - ✗ **Pricing is per-prediction or per-API-call.** You'll be afraid to use the thing you bought.
 - ✗ **They mention ChatGPT in the first meeting.** Different stack, different problem domain.
 - ✗ **They've never deployed in a SEA plant before.** The humidity, tariffs, and shift culture all matter.
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07 The one-page version

SUMMARY

Print this. Pin it on the wall above the maintenance bench.

BEFORE YOU START

- ☐ Name the exact problem.
- ☐ Confirm the data exists.
- ☐ Pick the human who'll own it.
- ☐ Define accuracy threshold.
- ☐ Decide what changes on the floor if it works.

DURING THE PILOT

- ☐ One asset, one metric.
- ☐ Six to twelve months of data.
- ☐ Shadow mode before action mode.
- ☐ Weekly review with sponsor.
- ☐ Document everything.

BEFORE YOU SCALE

- ☐ Did predictions match reality?
- ☐ Was downtime actually reduced?
- ☐ Can your team operate it alone?
- ☐ Will the vendor stay reachable?
- ☐ If “obviously yes”, scale. If not, kill.

AI on the floor isn't about the model. It's about whether anything **actually changes when the model is right.**

ABOUT THE AUTHOR

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10 years on the industrial floor before founding TGE. TGE turns manufacturing data into actionable efficiency. We build for SEA plants because we understand SEA plants: the humidity, the tariff curves, the shift culture, the budget realities.

TGE MISSION

Turn manufacturing data into actionable efficiency.

TGE VISION

With our existence, national productivity rises.

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