

MERIDIAN PRECISION COMPONENTS SDN. BHD.

Digital Transformation Strategy and ERP Investment Feasibility

Final consulting report to the Board of Directors

Prepared for: Board of Directors and CEO

Engagement: Technology Strategy, Operations Transformation and Financial Advisory (8 weeks)

Evaluation horizon: 2027-2031 | **Transformation horizon:** 12 months

Document: Final Consulting Report

Simulated client engagement. All company figures are synthetic case data; vendor figures are preliminary estimates, not quotations. Analyst assumptions are labelled as such and listed in the appendix and in the Excel model.

Executive summary

Recommendation. Do not buy an ERP today, and do not do nothing. Approve a Phase 1 programme of process, master-data and control improvements (Option A, RM 0.27m loaded, ceiling RM 0.30m), reject the advanced-analytics ERP (Option C), and pre-authorise a cloud ERP core (Option B scope) of up to RM 1.2m that the steering committee releases only if explicit Gate 1 criteria are met in month 4. At current estimates the cloud ERP is a break-even investment (NPV -RM 0.09m); it becomes defensible only with better commercial terms, about 66 inventory days and owner-signed scalability benefits.

Answers to the six board questions

1. What causes the inefficiency? Four linked causes: (i) no single source of truth - the same material appears under several codes and each plant keeps its own stock and schedule sheets; (ii) weak inventory and purchasing controls - monthly counts only, no location discipline, no duplicate-order check, no approval logic for emergency buys; (iii) a planning disconnect - customer orders are re-keyed, schedules change by email and chat, and nobody owns a frozen plan; (iv) fragmented reporting (260 hours a month). Rework (4.6%) is mostly a quality-engineering problem and should not be credited to ERP.

2. What does it cost? Against 2024 operating intensity, the avoidable cash leakage is about **RM 0.71m a year** (emergency buying RM 200k, write-offs RM 135k, overtime RM 169k, rework estimate RM 208k), plus about RM 0.33m of staff time that is capacity rather than cash. Operations explains roughly two-thirds (47% without the rework estimate) of the RM 1.08m gross-margin gap; the CFO's material-cost theory may explain the rest but cannot be tested with the data supplied. Separately, cutting inventory from 79 to 65 days would release a **one-time RM 1.42m** of cash; this is not an annual saving.

3. Can processes improve without ERP? Yes, partly. Option A is credited with 4 inventory days (RM 0.41m cash), RM 0.17m a year of recurring benefit by 2031 and a positive NPV of RM 0.36m with an 11-month payback. It hits a ceiling because spreadsheets cannot give two plants a shared, real-time stock position.

4. Which option has the strongest case? On a risk-adjusted basis, Option A is the strongest committed investment; the phased route (A now, ERP at a gate) is the strongest strategic path. Option B is marginal (-RM 0.09m NPV, IRR 8.7%, payback 40 months). Option C is rejected: RM 1.93m loaded cost breaches the RM 1.5m cap, go-live falls in month 14, and NPV is -RM 1.26m.

5. What returns can be expected? Base case, 12% discount rate, including one-time working-capital release: A RM 0.36m (IRR 76.6%), B -RM 0.09m (IRR 8.7%), C -RM 1.26m, phased route -RM 0.11m (IRR 8.3%). Excluding inventory cash, only A is near break-even (-RM 0.02m); B is -RM 1.07m. The case for any option is therefore a cash-release case, and the board should read it that way. Taking management's KPI claims at face value would inflate Option B's NPV to RM 0.96m.

6. How to implement without disrupting production? Sequence foundations before software; run the ERP RFP in parallel so Gate 1 has firm quotes; migrate in three trial loads; cut over finance and procurement first, then Plant B, then Plant A, with a four-week parallel run, capped training (max 4 hours per person per week) and a tested rollback plan.

Scorecard (Base case) and the incremental question

Route	Loaded initial	NPV @12%	NPV excl. WC	IRR	5-yr ROI	Payback (mo)	Board test
A Process improvement	RM 0.27m	RM 0.36m	-RM 0.02m	76.6%	202%	11	PASS
B Cloud ERP	RM 1.19m	-RM 0.09m	-RM 1.07m	8.7%	26%	40	FAIL
C ERP + analytics	RM 1.93m	-RM 1.26m	-RM 2.43m	-17.6%	-48%	none in 5 yrs	FAIL
P Phased (A, then gated ERP)	RM 1.32m	-RM 0.11m	-RM 1.10m	8.3%	23%	41	FAIL

Board test: NPV > 0, IRR > 12%, ROI >= 20%, payback <= 36 months, initial <= RM 1.5m. P passes the board test at Gate 1 target terms (RM 700k, RM 180k licence) but still adds less than Option A alone (-RM 0.22m incremental); the ERP therefore needs its unmonetised scalability benefits or 66 inventory days to justify itself (Section 13).

What would change our recommendation

- **Proceed straight to ERP** if firm quotes come in at or below RM 700k (implementation) and RM 180k (licence) and the Phase 1 stock results point to 66 days or better.
- **Proceed earlier** if growth runs at about 6% a year or more: at 6% volume growth Option B turns to about +RM 0.17m NPV (sensitivity, Section 12.4).
- **Make the ERP mandatory** if key customers require lot traceability, electronic data exchange or audit trails that spreadsheets cannot provide.
- **Shift the priority to pricing and sourcing** if the requested price data shows material costs explain more than the 34% residual of the margin gap.
- **Cut the programme back** if the time study shows the PO, search and reporting hours are less than half our estimates, or if Phase 1 inventory accuracy stalls below 88%.

Key risks to the recommendation

Three assumptions carry the economics: that excess inventory can be reduced by 4 days through controls alone and a further 7 to 10 days once real-time visibility exists; that 55% of excess emergency buying and write-offs are avoidable; and that the ERP can be bought at or near the preliminary estimates. Each is tested in the first four months, before any large commitment is made.

1. Engagement scope, approach and evidence

The board asked six questions and gave no pre-authorisation for an ERP purchase. The recommendation could therefore be to proceed, postpone, implement a limited solution or reject. We treated every management claim as a hypothesis, not a fact, and built the business case only from benefits with a credible causal mechanism.

Workstream	What we did	Deliverable
1 Current-state diagnostic	Process mapping (procure-to-pay, inventory, order-to-plan), margin attribution, bottleneck and root-cause analysis, cost quantification with overlap control	Diagnostic report, process maps
2 Technology strategy	Requirements, integration and feasibility assessment, three-option plus phased evaluation, security and governance, vendor criteria, TCO	Evaluation matrix
3 Financial case	Baseline model, five-year cash flows, NPV, IRR, ROI, payback, scenarios, sensitivities, delay analysis	Excel model
4 Implementation	Sequencing, readiness, migration, training, change, controls, governance, KPIs	Roadmap, risk register

Evidence base and its limits

- **Provided:** three years of management accounts (Exhibit 1), inventory, procurement, warehouse and production KPIs (Exhibits 2-5), IT landscape, stakeholder interviews, a 120-response employee survey, preliminary option costs.
- **Not provided:** commodity price or purchase-price-variance data, stock-movement logs, line-stoppage records, a time-and-motion study, customer-level late-delivery penalties, receivables data, firm vendor quotations.
- **Consequence:** several cost pools are analyst estimates (labelled in the model). We use 2024 intensity as the normalisation benchmark and flag where a four-week study is needed to validate a figure.
- **Convention:** RM, pre-tax, synthetic data. Tax, grants and financing structure are excluded and should be confirmed by the CFO.

A principle runs through the document: **separate cash from capacity, and separate one-time cash from recurring savings**. Time saved is not payroll saved; inventory released is not an annual saving; and a cost counted in one line must not reappear in another.

2. Financial diagnosis: what does the evidence say?

2.1 Growth without profit

Revenue grew 22.1% between 2024 and 2026 (RM 39.8m to RM 48.6m), but EBITDA fell from RM 5.40m to RM 5.35m. Cost of goods sold rose 25.8%, faster than revenue, so gross margin slipped from 25.9% to 23.7%. At the 2024 margin, 2026 EBITDA would have been about RM 6.6m.

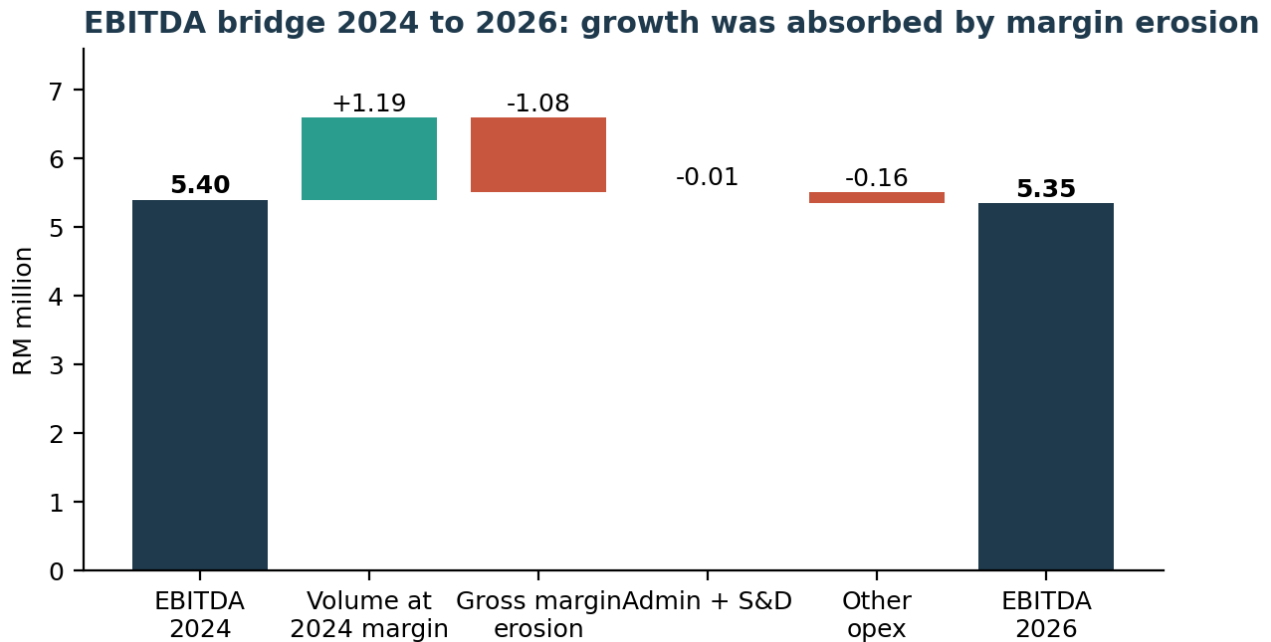


Figure 1. EBITDA bridge. Growth added RM 1.19m at constant margin; gross-margin erosion removed RM 1.08m and other opex a further RM 0.17m. Administrative and selling costs grew in line with revenue and are not the problem.

RM million	2024	2025	2026	Change 24-26
Revenue	39.8	44.2	48.6	+22.1%
COGS	29.5	33.2	37.1	+25.8%
Gross profit	10.3	11.0	11.5	+11.7%
Gross margin	25.9%	24.9%	23.7%	-2.2 pp
Administrative	2.8	3.1	3.4	+21.4%
Selling and distribution	1.7	1.9	2.1	+23.5%
Other opex	0.40	0.50	0.65	+62.5%
EBITDA	5.40	5.50	5.35	-0.9%
EBITDA margin	13.6%	12.4%	11.0%	-2.6 pp

2.2 CFO versus Operations Director: which explanation does the evidence support?

The CFO attributes the decline to rising material costs; the Operations Director to inventory mismanagement, production delays and procurement inefficiency. We tested both by comparing 2026 leakage lines with 2024 intensity (2024 values scaled by the 1.22x revenue growth).

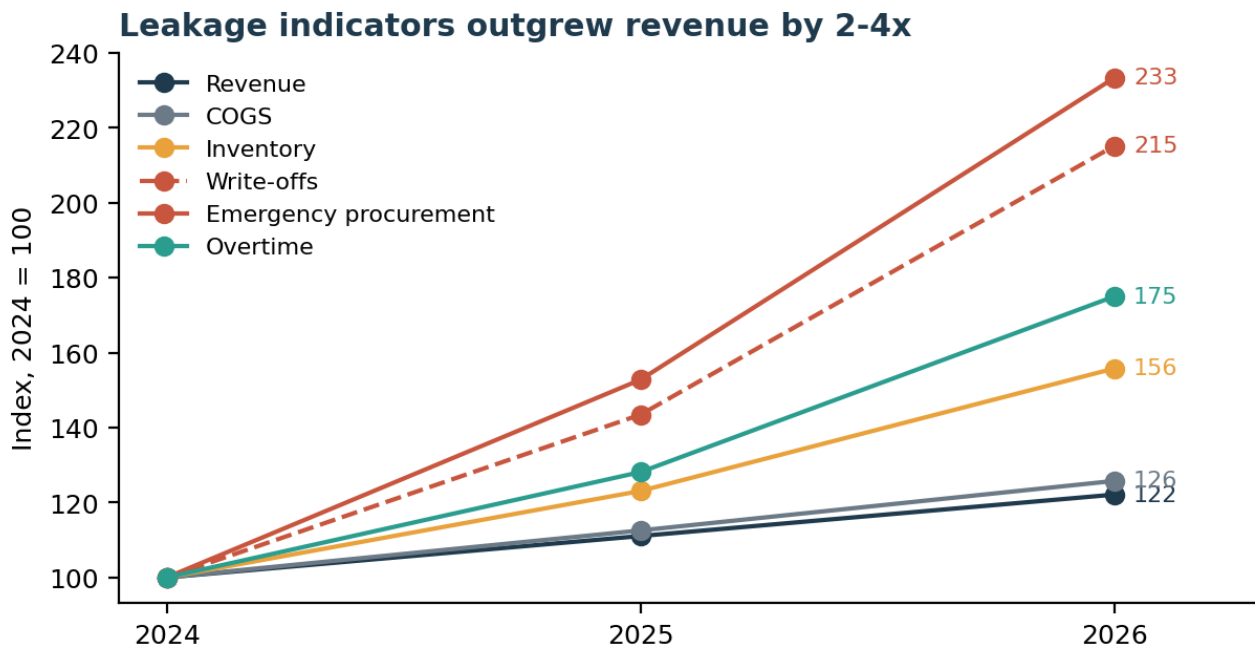


Figure 2. Index of revenue and leakage indicators (2024 = 100). Inventory +56%, overtime +75%, write-offs +115%, emergency buying +133% against revenue +22%.

Component of gross-profit gap (RM 1,077k)	RM k	Share	Evidence quality
Emergency procurement above normalised 2024	200	19%	Reported (Exhibit 2)
Inventory write-offs above normalised 2024	135	13%	Reported
Overtime above normalised 2024	169	16%	Reported
Rework: (4.6% - 3.2%) x COGS x 40% conversion share	208	19%	Estimate - cost-per-rework assumption
Identified operational leakage	712	66%	
of which excluding rework estimate	504	47%	
Residual: material price, mix, pricing, unexplained	365	34%	Cannot be tested - no price data

Operational leakage explains about 66% of the RM 1.08m gross-margin gap (47% excluding the rework estimate)

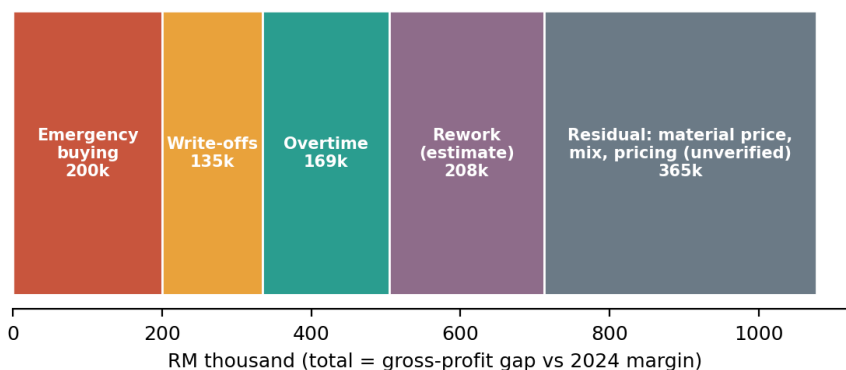


Figure 3. Attribution of the gross-margin gap. The operational share is 47-66% depending on the rework estimate.

Finding. Neither executive is fully right. Operational leakage explains roughly half to two-thirds of the margin gap; material price, product mix and pricing may explain the remainder but the data to test the CFO's view was not supplied. We request a commodity price index against BOM material content, purchase price variance by supplier, and price pass-through clauses by customer. The model therefore credits only the operational pools, and no ERP benefit is claimed against the unverified residual.

Two further observations: (1) administrative and selling expenses rose roughly in line with revenue, so overhead bloat is not the issue; (2) other operating expenses rose 62.5% (RM 0.16m above normalised level) without explanation and should be reviewed by the CFO.

3. Working capital and inventory

Average inventory rose from RM 5.2m to RM 8.1m (+56%) against COGS growth of +26%. Inventory days (average inventory / COGS x 365) rose from 64 to 79, turnover fell from 5.7x to 4.6x, write-offs more than doubled and stock accuracy fell from 94% to 86%.

3.1 Why has inventory grown? Decomposition and open hypotheses

Driver of the RM 2.9m increase	RM m	Basis
Volume: COGS growth at 2024 inventory days (64)	1.34	5.2m x (37.1 / 29.5) - 5.2m, approximate
Increase in days from 64 to 79 (inefficiency)	1.57	8.1m less 6.53m at 64 days
Of which: genuine safety stock, duplicate procurement, slow movers, record errors	not separable	Needs stock-movement audit and ABC-XYZ analysis

Roughly 55% of the increase is explained by volume; the remaining RM 1.57m is excess relative to 2024 discipline. Management cannot split that excess among safety stock, duplicate purchasing, slow-moving items, poor forecasting and inaccurate records, which is why the first 8 weeks of Phase 1 include an ABC-XYZ classification and an ageing analysis. The Warehouse Manager's concern is valid: stock cuts applied across the board would raise stockouts (45 incidents a month today). Targets must differ by class.

3.2 Consulting challenge: reducing inventory days from 79 to 65

Step	Calculation	Result
Daily COGS (2026)	RM 37.1m / 365	RM 101,644
Days to release	79 - 65	14 days
Working capital released (one-time cash)	14 x RM 101,644	RM 1.42m
Cross-check on reported balance	RM 8.1m - 65 x RM 101,644	RM 1.49m
Memo: interest saved at 6% (not counted)	RM 1.42m x 6%	RM 85k
Recurring cash holding-cost saving (2%)	RM 1.42m x 2%	RM 28k a year
One-time liquidation haircut on slow movers (5%)	RM 1.42m x 5%	RM 71k (cost)

3.3 Working-capital release versus operating cost savings

These are different financial benefits and must never be added together:

	Working-capital release	Operating cost saving
Nature	Cash freed once from lower inventory investment	Recurring reduction in cost lines
Examples	RM 1.42m for 14 days	Write-off reduction, 2% holding cost (storage, insurance, handling), emergency freight
Balance sheet / P&L;	Balance sheet only; no EBITDA effect	EBITDA
Model treatment	One-time cash inflow, shown in its own row, with the haircut cost	Annual benefit line, ramped
Interest on released cash	Excluded: the 12% discount rate already prices cash	n/a

If the same inventory fall were also credited with financing savings, the case would be counted twice. In the model the headline NPV includes the cash release as a cash flow and reports a second NPV excluding it, so the board can see how much of the case depends on one-time cash.

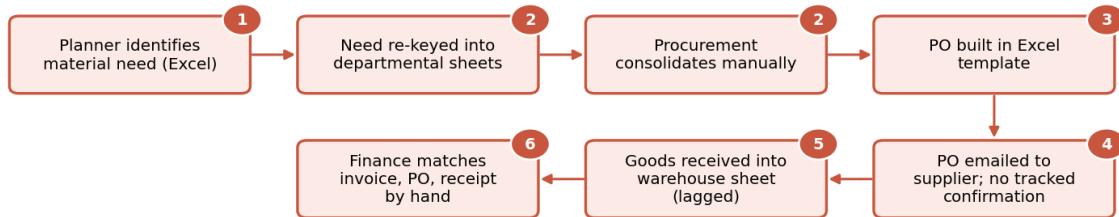
4. Procurement operations

4.1 Current process and bottlenecks

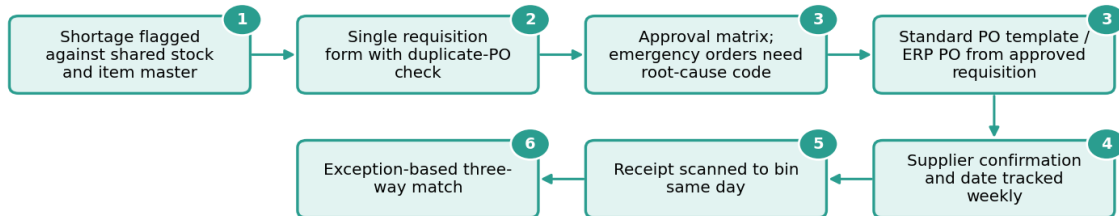
Seven manual steps connect a production need to a paid invoice: planner identifies need, entry into departmental sheets, manual consolidation, Excel PO, email to supplier, goods receipt in warehouse sheet, manual three-way match by finance. Each hand-off re-keys data and none is checked against a shared stock position.

Process map 1: Procure-to-pay

CURRENT STATE (spreadsheets, email, manual re-keying)



FUTURE STATE (Phase 1 controls first; Phase 2 ERP where gated)



Pain points: (1) No visibility of stock held elsewhere (86% accuracy) (2) Duplicate and re-keyed requests (2.8% duplicate POs) (3) 42 min per PO; 14% need correction (4) No supplier confirmation tracking; 11% emergency orders (5) Receipts booked late (6) Manual matching (finance rework)

Improvements: (1) Shared item master and stock view (2) One requisition entry with duplicate check (3) Approval matrix, fewer errors and re-work (4) Supplier dates tracked; early warning (5) Same-day receipt, real-time stock (6) Review exceptions only

Figure 4. Procure-to-pay: current and future state (also in the stand-alone process-maps file).

4.2 Labour required for purchase-order processing

Item	Calculation	Value
PO processing time	4,800 POs x 42 min / 60	3,360 hours a year
Hourly cost	RM 66,000 / 1,920 paid hours	RM 34.4 per hour
Annual labour cost of PO processing	3,360 x RM 34.4	RM 115,500
Share of procurement capacity	3,360 / (8 FTE x 1,920)	21.9% (1.75 FTE)

Time reduction	Hours saved	Value of time (RM)	FTE equivalent	Payroll cash saved
30%	1,008	34,700	0.53	RM 0
40%	1,344	46,200	0.70	RM 0
50% (Procurement Manager claim)	1,680	57,800	0.88	RM 0

Time saved is not cash saved. Even at a 50% reduction only 0.88 FTE of an 8-person team is freed, so payroll cannot fall without redundancy, which the client has not proposed and which would damage adoption (44% of surveyed staff fear job losses). The saving is capacity. We value it at a 35% monetised share in the base case (zero in the downside) and credit a 35% reduction for Option B, not 50%, because no time study exists, automatic PO generation needs a clean item and supplier master, and a share of the 42 minutes is supplier negotiation rather than keying.

4.3 Reassigning capacity and other procurement benefits

- **Redeploy to supplier management.** Freed hours should fund weekly supplier-date confirmation, supplier scorecards and dual-sourcing of single-source A-items. This is where capacity converts to cash: fewer emergency orders and better prices.
- **Emergency orders (11% of POs).** Today RM 420k is spent on emergency procurement (we treat this as the incremental premium; at 528 orders this is RM 795 per order, too low to be total order value). Only the RM 200k above 2024 intensity is treated as avoidable.
- **Duplicate POs (2.8%, about 134 a year).** Duplicates inflate stock and eventually write-offs. They are valued through the inventory and write-off lines, never separately, to avoid double counting.
- **Corrected POs (14%, 672 a year).** Included in the PO time reduction credit.
- **Sourcing and price compliance.** Spend visibility across 126 suppliers may yield 0.05% (A) to 0.20% (B) of an assumed RM 18.6m material spend (50% of COGS), RM 9k to RM 37k a year. This assumption needs a spend cube.
- **Invoice matching.** Exception-based matching reduces finance rework; not separately monetised.

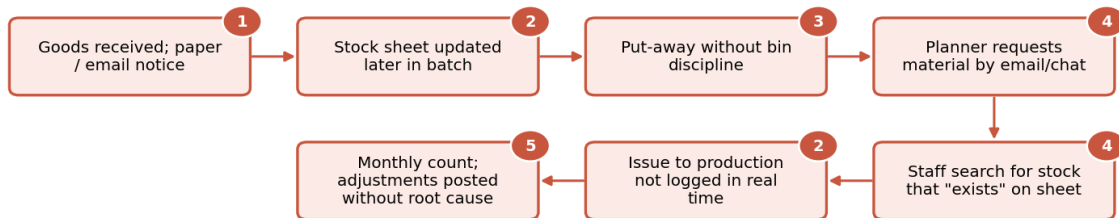
5. Inventory and warehouse management

KPI	Plant A	Plant B	Combined / comment
Active SKUs	1,650	1,200	2,850 total; duplicates inflate this
Inventory accuracy	88%	83%	86% overall; 94% in 2024
Average picking time	14 min	19 min	Plant B 36% slower
Monthly adjustments	145	210	355 a month; 4,260 a year
Stockouts per month	18	27	45 a month; 540 a year
Warehouse staff	12	9	21

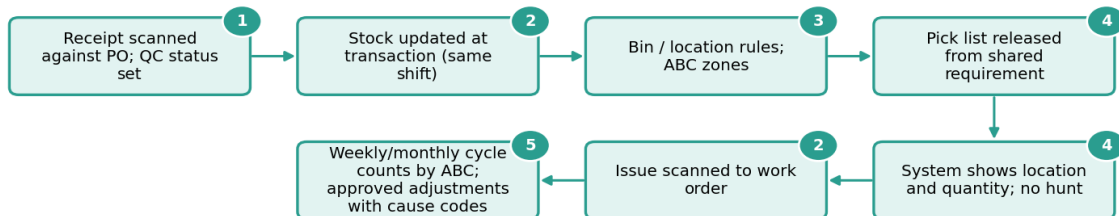
Planners request material that appears available on the sheet but cannot be found; staff search; procurement sometimes buys emergency stock that already exists elsewhere in the company. Plant B is the weakest on every indicator, which is why we recommend it as the first inventory cutover (lower customer risk than semiconductor work at Plant A, largest accuracy gain).

Process map 2: Inventory and warehouse control

CURRENT STATE (spreadsheets, email, manual re-keying)



FUTURE STATE (Phase 1 controls first; Phase 2 ERP where gated)



Pain points: (1) Late receipt information (2) Records lag physical stock (Plant A 88%, Plant B 83%) (3) No location control (4) Planners cannot trust stock; emergency buying (5) Monthly count too slow to detect errors

Improvements: (1) Same-day receipt (2) Transaction-time updates (3) Findable stock (4) Trust restored; fewer emergency POs (5) Errors found in days not months

Figure 5. Inventory and warehouse control: current and future state.

5.1 Methodology to quantify the cost of poor inventory control

The Operations Director estimates RM 600,000 a year, not independently validated. We built a bottom-up method with six cost categories, each mapped to a single financial line so that overlaps are visible and removed.

Cost category	How measured	Estimate	Treatment / overlap control
Inventory record discrepancies	355 adjustments a month; cost = investigation hours; value of adjustments from GL (to be extracted)	Inside search labour	Measured as hours; value of net adjustments flows to write-offs

Cost category	How measured	Estimate	Treatment / overlap control
Labour locating material	540 stockouts x 5 hours (2 staff x 2.5h) + 4,260 adjustments x 0.5h = 4,830 hours x RM 25/h	RM 121k (analyst estimate)	Capacity, not payroll; monetised at 35%; needs 4-week time study
Emergency procurement	Premium and expedite cost on 528 orders; split by root cause code (stock existed / forecast / supplier / customer change)	RM 420k gross; RM 200k above 2024	Counted once; duplicate-PO value NOT added
Inventory obsolescence	Write-offs by SKU age and cause	RM 312k gross; RM 135k excess	Write-off only; stock value sits in working capital
Production interruptions	Line-stoppage log (does not exist); proxy = overtime above 2024 intensity	RM 169k	Valued once via overtime; not as a separate line, because overtime is the recovery cost
Working capital in excess inventory	Days above 2024 level x COGS per day	RM 1.42m for 14 days	One-time cash; financing excluded

Validation of the RM 600k. Search labour (RM 121k) + emergency premium excess (RM 200k) + overtime excess (RM 169k) + write-off excess (RM 135k) = **RM 625k**. The Operations Director's order of magnitude is therefore reasonable. But RM 121k is capacity rather than cash, rework (RM 208k excess) lies outside his figure, and not all of it can be removed by any system. We use **RM 0.71m of avoidable cash pools** (including rework) and credit only a share of each.

5.2 Overlap map (double-counting control)

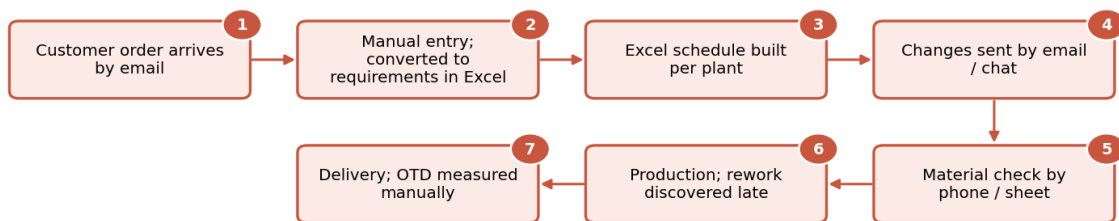
Cost / effect	Counted in	Overlaps with	Treatment
Emergency premium	Emergency line	Duplicate POs, stockouts	Premium only
Excess and duplicate stock	WC release (one-time)	Write-offs, holding cost	Only write-off excess and 2% holding are P&L;
Search labour	Capacity line	Stockout downtime, overtime	Hours valued once
Production interruption	Overtime line	Search labour, expedite freight	No standalone line
Late deliveries	OTD retention line	Overtime, expedite	Margin on retained revenue only; no penalties assumed
Financing of inventory	Memo only	WC release	Excluded from NPV
PO and report hours	Capacity line	-	Not payroll savings

6. Production planning

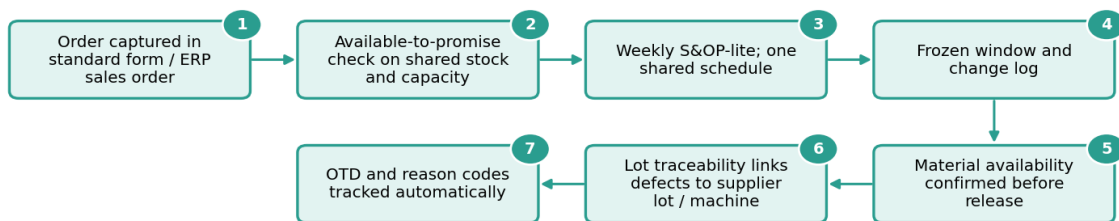
Indicator	2024	2025	2026	Change
On-time delivery	94%	91%	87%	-7 pp
Schedule adherence	92%	88%	82%	-10 pp
Machine utilisation	76%	74%	71%	-5 pp
Rework rate	3.2%	3.8%	4.6%	+1.4 pp
Production lead time	12 days	14 days	17 days	+5 days
Overtime	RM 320k	RM 410k	RM 560k	+75%

Process map 3: Order-to-plan-to-deliver

CURRENT STATE (spreadsheets, email, manual re-keying)



FUTURE STATE (Phase 1 controls first; Phase 2 ERP where gated)



Pain points: (1) Orders re-keyed (2) Promise dates ignore stock and capacity (3) Two schedules, no shared truth (82% adherence) (4) Uncontrolled changes drive overtime (5) Shortages found at the machine (6) Rework 4.6%: causes are calibration, materials, skills (7) OTD 87% with no root-cause data

Improvements: (1) Single order record (2) Realistic promise dates (3) One schedule, one owner (4) Stability inside freeze window (5) Fewer line stoppages (6) Targeted quality actions (outside ERP scope) (7) Actionable delivery data

Figure 6. Order-to-plan-to-deliver: current and future state.

6.1 Which problems need technology, process redesign, or both?

We did not attribute every production inefficiency to the absence of ERP. Each problem was tested against the question: if the software existed tomorrow, would the problem disappear?

Problem	Root cause hypothesis	Needs	Reasoning
Schedule adherence 82%	Uncontrolled changes by email/chat; material shortages; no freeze window	Process first, then basic planning module	A frozen plan with change log is discipline; software enforces it once data is right
Lead time 12 to 17 days	Waiting for material, queueing, rework loops	Both	Material availability is a data problem; queueing is a scheduling-rule problem
Utilisation 76% to 71%	Material shortages, changeovers, maintenance	Mostly process	ERP indirectly helps via material availability; not a driver of machine downtime

Problem	Root cause hypothesis	Needs	Reasoning
On-time delivery 87%	Shortages + schedule instability + capacity	Both	Promise dates ignore stock and capacity
Overtime +75%	Recovery of lost time from shortages and re-plans	Both	Valued only on the excess over 2024 intensity
Rework 4.6%	Calibration, material quality, operator skill, inadequate process control	Neither (quality engineering)	Only lot traceability and revision control are ERP-related; credited at 12% of the excess pool for B
Advanced scheduling (APS)	Production Manager preference	Not yet	No clean routing data, utilisation falling for non-scheduling reasons; defer to Gate 3

Position on the three-way disagreement. The CFO is right that production discipline must improve first. The IT Manager is right that basic ERP functionality is sufficient for now. The Production Manager is right that scheduling needs a better tool eventually, but advanced planning on today's data would automate inconsistent inputs. Our roadmap therefore puts schedule governance (S&OP-lite;, freeze window) in Phase 1 and defers advanced planning to a gated Phase 3.

7. Finance, reporting, IT landscape and data quality

7.1 Current landscape

System	Current arrangement	Gap
Accounting	Standalone package	No link to inventory, procurement or production
Procurement	Excel + email	No audit trail, no approvals, duplicate entry
Inventory	Independent spreadsheets per plant	No real-time position; 86% accuracy
Production planning	Excel schedules	Two schedules; changes by chat
Customer orders	Email + manual entry	Re-keying; no available-to-promise
Reporting	Excel consolidation, ~40 reports	260 hours a month (3,120 a year, about 1.6 FTE)
Infrastructure	Local servers + cloud storage	Daily local backup only; basic endpoint protection
IT team	3 people	No capacity for a large implementation without backfill

7.2 Finance and reporting workflow

Finance gathers data from five sources, reconciles inventory and procurement manually, and re-cuts the same figures in about 40 recurring reports. Reporting labour is 3,120 hours a year (RM 89k at RM 28.6 per hour). Management expects to cut this to 55 hours a month under Option C; we credit 215 (A), 130 (B) and 100 (C), because validation, ad-hoc requests and commentary do not disappear. A first step costs almost nothing: rationalise 40 reports to about 15 owned KPIs before automating any of them.

7.3 Data quality and system fragmentation

The IT Manager warns that identical materials carry different codes. This is the single most important implementation risk. ERP projects commonly fail or overrun because dirty master data is migrated, and in this case the item master drives purchasing, stock, costing and planning. Phase 1 therefore includes a master-data standard (naming, unit of measure, status), a golden-record process for items, suppliers and customers, named data owners, and a duplicate-rate KPI (<2% at Gate 1).

Data domain	Records	Known issue	Action before migration
Item master	2,850 active SKUs	Same material under different codes	De-duplicate; one code per item; classify ABC-XYZ; retire dead SKUs
Supplier master	126	Duplicate supplier entries, inconsistent terms	Merge, verify bank/tax data, standard lead times
Customer master	74	Different names across order emails	Single customer ID and ship-to
Stock balances	Two plant sheets	86% accurate	Full count at cut-over baseline; cycle count thereafter
Open documents	POs, SOs, WIP	Spread across mail and sheets	Migrate open items only; archive history read-only

8. Bottlenecks and root-cause analysis

We traced each symptom backwards until reaching a cause that management can act on. The chain below summarises the findings; the "why" at each level was confirmed by at least two data points.

Symptom	Why 1	Why 2	Root cause	Type
Emergency buying 11% of POs; RM 420k	Planners cannot trust stock, so they order again	Stock records 86% accurate; two plant sheets	No transaction-time stock control; no cycle counting	Process + data
Inventory days 64 to 79	Safety stock set by fear of stockouts	Stockouts caused by record errors and late supplier dates	No ABC-XYZ policy; no supplier-date tracking	Process
Write-offs RM 312k	Items bought twice or never used	Duplicate codes and duplicate POs (2.8%)	No master-data governance; no duplicate check	Data + process
Schedule adherence 82%	Plans change daily	Changes by email/chat; materials missing	No frozen window; no change control; no shared schedule	Process
OTD 87%	Promise dates unrealistic	Orders re-keyed; no stock/capacity check	Order-to-plan disconnected	Both
Overtime +75%	Recovering lost hours	Shortages and re-plans	Same as above	Both
Reporting 260 hours/month	Manual consolidation	Five unconnected sources	No central database; 40 uncontrolled reports	Technology + process
Rework 4.6%	Defects found late	Calibration, material, operator skills	Quality system gaps	Quality engineering

Prioritised problem list

Ran k	Problem	Annual effect	Fix first with	Technology needed?
1	Master data and record accuracy	Enables every other benefit	Master-data programme, cycle counts	Partly (to hold it)
2	Inventory control and excess stock	RM 1.42m one-time; RM 135k + 28k a year	ABC-XYZ policy, slow-mover clearance	Visibility helps
3	Emergency and duplicate purchasing	RM 200k a year excess	Requisition form, duplicate check, approvals	Yes for real-time stock view
4	Schedule instability and overtime	RM 169k a year excess	Freeze window, S&OP-lite;	Basic planning module later
5	Reporting burden	3,120 hours (capacity)	Rationalise to ~15 KPIs	Yes for integration
6	Rework	RM 208k a year excess (estimate)	Quality engineering programme	No (traceability only)
7	Unverified material-cost effect	Up to RM 365k (unverified)	Spend cube, price pass-through	No

9. Quantifying avoidable operating cost

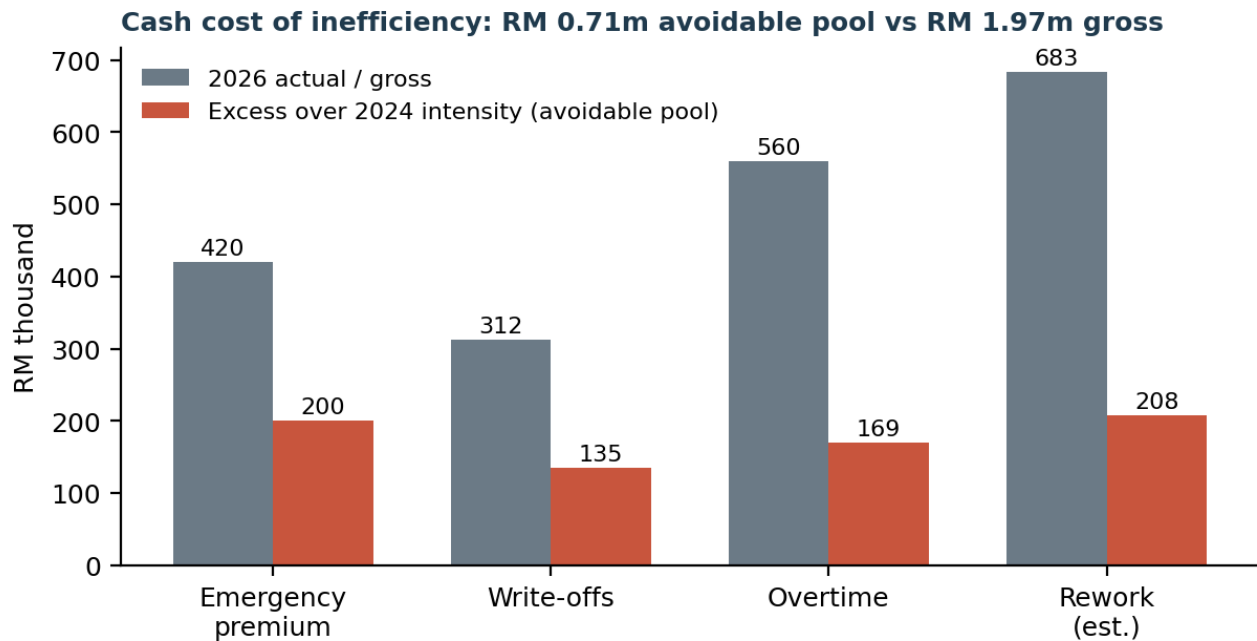


Figure 7. Gross 2026 cost versus avoidable excess over 2024 intensity.

Cost pool	2026 gross	Avoidable excess	Nature	Credited capture (A / B / C)
Emergency procurement premium	RM 420k	RM 200k	Cash	20% / 55% / 65%
Inventory write-offs	RM 312k	RM 135k	Cash	20% / 55% / 65%
Overtime	RM 560k	RM 169k	Cash	10% / 35% / 50%
Rework (estimate)	RM 683k	RM 208k	Cash; weak ERP link	0% / 12% / 20%
PO labour	RM 115k	capacity	Capacity (3,360 h)	12% / 35% / 42% of hours
Reporting labour	RM 89k	capacity	Capacity (3,120 h)	215 / 130 / 100 hours after
Search / recount labour	RM 121k	capacity	Capacity (4,830 h)	Pro rata to accuracy gain
Sourcing	n/a	RM 18.6m spend base	Cash	0.05% / 0.20% / 0.25%
OTD retention	n/a	unvalidated	Cash (margin)	+2 / +5 / +7 pp

Total avoidable cash pool: RM 0.71m a year (RM 0.50m without the rework estimate), plus RM 0.33m of capacity. Even a perfect system would not remove all of it, because some emergency buying is supplier-driven and some overtime is genuine demand. We therefore capture 20-65% of each pool depending on the option.

Why the sums are smaller than management expects

- The pool is the excess over 2024 intensity, not the gross cost.
- Capacity hours are valued at a 35% monetised share in the base case.
- Rework gets minimal credit because calibration, material quality and operator training are not software problems.
- Customer retention is valued at 0.10% of revenue per percentage point of OTD, at a 25% margin, because no penalty or churn data exists.
- Scalability benefits (avoided back-office hires as volume grows) are excluded and shown as upside only.

10. Technology strategy and option evaluation

10.1 Functional requirements

Requirement	Priority	Why
Single item, supplier and customer master with governance	Must	Root cause 1
Multi-plant inventory, bin/lot control, scanning	Must	Accuracy 86%
Requisition to PO workflow with approvals and duplicate check	Must	11% emergency; 2.8% duplicates
Sales order entry with available-to-promise	Must	OTD 87%
Finance: GL, AP/AR, three-way match, e-invoicing (MyInvois), SST	Must	Statutory; reconciliation effort
Basic MRP and finite-capacity-light scheduling	Should	Schedule adherence
Lot traceability, revision control, quality hold	Should	Automotive and semiconductor customers
KPI dashboards (inventory, OTD, schedule, margin)	Should	CEO request
Advanced planning, demand forecasting, advanced BI	Could (Gate 3)	Data not yet clean; marginal value

10.2 The options as assessed

	A Process	B Cloud ERP	C ERP + analytics	P Phased
Vendor estimate (initial)	RM 220k	RM 820k	RM 1,320k	RM 910k (B + process/data work, net of RM 30k lower migration effort)
Overrun allowance (Base)	9% (complexity 0.6x)	15%	19.5% (1.3x)	15%
Added by us: backfill, cyber, scanners	RM 30k	RM 250k	RM 350k	RM 270k
Loaded initial (Base)	RM 0.27m	RM 1.19m	RM 1.93m	RM 1.32m
Licence & support p.a.	RM 55k	RM 210k	RM 360k	RM 210k
Admin and cyber p.a.	RM 15k	RM 100k	RM 185k	RM 100k
Go-live (month)	4 (controls)	11 (incl. selection)	14	12 (ERP); 4 (controls)
5-year TCO	RM 0.63m	RM 2.76m	RM 4.63m	RM 2.86m

Costs not in the vendor estimates but necessary for the benefits to be real: internal backfill for key users (RM 120k for B), scanning hardware and labels (RM 90k), cybersecurity set-up (RM 40k), and ongoing ERP administration and security (RM 100k a year). Vendor overrun allowances are scaled for complexity.

10.3 Weighted evaluation

Criterion (weight)	A	B	C	P
Financial return (25%)	5	2	1	3
Fit to root causes (15%)	3	4	3	5
Implementation risk (15%)	5	3	1	4
Production continuity (10%)	5	3	2	4
IT team capacity (10%)	4	3	1	3
Scalability (10%)	1	4	5	4
Cybersecurity and data governance (5%)	2	4	4	4
Budget and board constraints (10%)	5	4	1	4
Weighted score	4.05	3.15	1.95	3.80

Reading: Option A scores highest because it is cheap, safe and returns cash quickly, but scores 1 on scalability. Option P scores second with a better fit to root causes. The practical conclusion is a combined route: commit to A now and hold a gated option to proceed to P. Option C ranks last on financial return, risk, capacity and budget.

10.4 Feasibility against the client's constraints

Constraint	A	B	C	P	Comment
Plants operational throughout	Pass	Conditional	Fail	Conditional	Wave cutover, Plant B first, parallel run; C changes scheduling logic in both plants together
Historical data preserved	Pass	Conditional	Conditional	Conditional	Migrate 3 years of transactions and all open items; archive older data read-only
No extended training removal	Pass	Conditional	Fail	Conditional	Cap 4 h/person/week; C needs about 40% more training
Cybersecurity	Conditional	Pass	Pass	Pass	A needs MFA and backup upgrades regardless
Initial investment < RM 1.5m (Base)	Pass	Pass	Fail	Pass	C: RM 1.93m loaded
Within budget in downside (+40%)	Pass	Pass	Fail	Conditional	P downside RM 1.54m: commitment ceiling at RM 1.2m
Within 12 months	Pass	Conditional	Fail	Conditional	C go-live month 14
Capacity of 3 IT staff	Pass	Conditional	Fail	Conditional	Needs partner PMO, backfill, one ERP admin

Option C is impractical, not just unattractive. It fails four of eight constraints on a fully loaded basis, depends on demand-forecasting and advanced planning using data that does not yet exist in usable form, and would need roughly two additional IT/data FTE. Management's own 60-day inventory target would put Meridian below its 2024 performance (64 days), which clean data cannot yet support.

10.5 Scalability

Spreadsheet-based Option A suits today's two plants but is the weakest platform for growth: each new plant, product family or customer adds another reconciliation. A cloud ERP core scales by licence, not by headcount, and its open interfaces allow BI, planning or forecasting add-ons later without re-platforming. The vendor criteria below therefore require open APIs and an add-on path, so that Gate 3 can add analytics without replacing the core.

11. Cybersecurity, data governance and vendor selection

11.1 Required controls (all options, before any ERP go-live)

Domain	Control	Evidence at Gate 1 / Gate 2
Access	SSO + MFA for all users; role-based access and segregation of duties (requisition, approval, receipt, payment); quarterly access reviews	Role matrix signed; MFA coverage 100%
Backup / recovery	3-2-1 backup with immutable offsite copy; RPO <= 4 h, RTO <= 8 h for ERP; restore tested	Successful restore test report
Incident response	Written IR plan, contacts, tabletop exercise, breach notification path	Tabletop completed
Vendor assurance	ISO 27001 or SOC 2 report, data-processing agreement, data residency, breach notification SLA, exit and data-return clause	Reports reviewed by IT Manager
Endpoint and network	Upgrade beyond basic endpoint protection; patching; email filtering	Patch compliance > 95%
Data governance	Data owners per domain; master-data change workflow; retention rules; PDPA data map	Governance charter approved

11.2 Vendor evaluation criteria

Weighted scorecard (Excel file 03): functional fit 31% (including multi-plant inventory, lot traceability, Malaysian statutory needs such as SST and e-invoicing, to be checked against the current LHDN phase); security 16%; commercial terms 16% (fixed-price implementation, 15% holdback, licence uplift capped at 3% a year for three years); delivery capability 21% (three Malaysian SME manufacturing references, migration tooling, plant-by-plant cutover plan); scalability 6%; usability 5%; integration 5%. Security and statutory fit are pass/fail gates before scoring.

11.3 Management's KPI claims versus credited values

KPI	Current	Mgmt A / B / C	Credited A / B / C	Why we challenge
Inventory accuracy	86%	91 / 96 / 98%	90 / 94 / 95%	Needs cycle counts, bin discipline and scanners (not in vendor quotes)
Inventory days	79	74 / 67 / 60	75 / 68 / 65	60 days is below 2024 level (64); forecasting needs clean history
On-time delivery	87%	90 / 94 / 97%	89 / 92 / 94%	Also needs capacity and schedule discipline
PO processing	42 min	34 / 22 / 16	37 / 27 / 24	No time study; auto-PO needs clean masters
Reporting hours	260	190 / 95 / 55	215 / 130 / 100	Validation and ad-hoc hours remain
Schedule adherence	82%	86 / 92 / 96%	84 / 89 / 91%	Freeze window and change control first
Rework	4.6%	4.3 / 3.7 / 3.2%	4.6 / 4.3 / 4.1%	Does ERP reduce defects? Not directly; only traceability and revision control

The model recognises only benefits with a causal mechanism: the financial effect of schedule adherence is captured through overtime, and of accuracy through emergency buying, write-offs and search time. Adherence and accuracy themselves are not valued separately.

12. The five-year financial case

12.1 Method

The model (Excel file 05) compares each route with the do-nothing baseline, which holds 2026 inefficiency *rates* constant with volume growing 3% a year (no further deterioration is assumed in the base case; the cost of continued deterioration is shown separately). For each benefit line, steady-state benefit = avoidable pool x capture rate x realisation, then ramped monthly from go-live and scaled by volume. Investment sits at t0 (conservative); operating flows are year-end; discount rate 12%; no terminal value.

Element	Base assumption
Initial investment	Vendor estimate x (1 + overrun x complexity) + backfill + cyber set-up + scanning hardware
Recurring cost	Licence with 5% annual inflation, ERP administration/retained partner, cybersecurity and governance, pro-rated in 2027
Benefits	Emergency, write-off, overtime, rework, sourcing, OTD retention, capacity x 35%, holding cost 2%
One-time	Working-capital release by inventory days, net of 5% liquidation haircut
Ramp	Linear from go-live over 6 (A), 9 (B), 12 (C) months; WC release 12-18 months
Excluded	Interest on released stock, scalability, price/mix gains from product costing, grants, tax

12.2 Base case results

Metric	A Process	B Cloud ERP	C ERP + analytics	P Phased
Loaded initial investment	RM 0.27m	RM 1.19m	RM 1.93m	RM 1.32m
NPV @12% incl. WC release	RM 0.36m	-RM 0.09m	-RM 1.26m	-RM 0.11m
NPV @12% excl. WC release	-RM 0.02m	-RM 1.07m	-RM 2.43m	-RM 1.10m
IRR incl. WC	76.6%	8.7%	-17.6%	8.3%
5-year ROI incl. WC	202%	26%	-48%	23%
Simple payback (months)	11	40	none in 5 yrs	41
Discounted payback (months)	13	none in 5 yrs	none in 5 yrs	none in 5 yrs
2031 operating benefit	RM 171k	RM 513k	RM 657k	RM 513k
2031 recurring cost	RM 82k	RM 355k	RM 623k	RM 355k
Cumulative inventory cash released by 2031	RM 471k	RM 1,296k	RM 1,650k	RM 1,296k

RM thousand	t0	2027	2028	2029	2030	2031
A: operating benefits		69	155	162	166	171
A: recurring costs		(47)	(73)	(76)	(79)	(82)
A: WC release (net of haircut)		265	145	12	13	13
A: total cash flow	(270)	287	227	98	100	103
B: operating benefits		5	343	483	498	513
B: recurring costs		(217)	(320)	(332)	(343)	(355)
B: WC release (net of haircut)		91	1,036	34	35	36
B: total cash flow	(1,193)	-121	1,058	186	190	193
P: operating benefits		69	361	483	498	513
P: recurring costs		(191)	(320)	(332)	(343)	(355)
P: WC release (net of haircut)		265	862	34	35	36
P: total cash flow	(1,316)	143	903	186	190	193

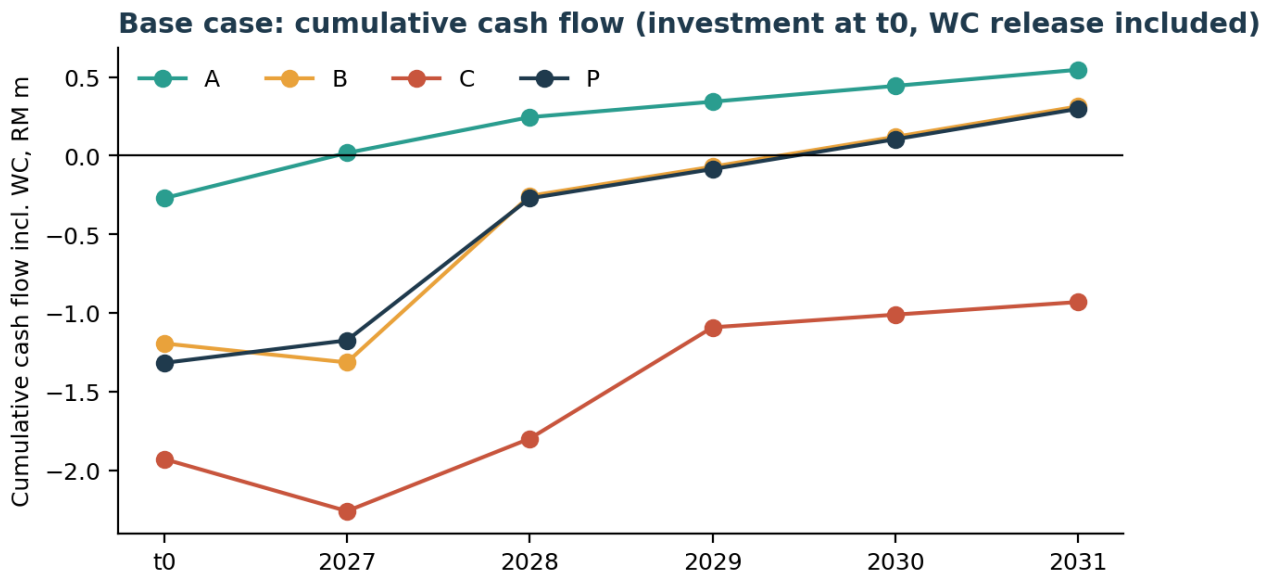


Figure 8. Cumulative cash flow, Base case (including working-capital release).

Reading the results. Only Option A passes the board criteria. Option B ends five years about RM 0.09m short of the 12% hurdle (IRR 8.7%); excluding one-time inventory cash it is RM 1.07m short, which means its recurring savings of about RM 0.5m a year barely exceed its recurring cost of RM 0.35m. Option A's recurring benefit also roughly equals its cost (NPV excl. WC about zero): the real return in both cases is the inventory cash. Option C cannot be justified: its extra RM 0.14m of annual benefit over B costs RM 0.27m of extra recurring cost.

12.3 Scenario analysis

Lever	Base	Conservative	Downside	Mgmt claims (reference)
Cost overrun (x complexity)	15%	25%	40%	0%
Go-live delay	0	3 months	6 months	0
Adoption ramp	1.0x	1.25x	1.5x	1.0x
Benefit realisation	100%	80%	60%	100%
Licence inflation	5%	7%	10%	0%
Volume growth	3%	1.5%	0%	3%
Capacity monetised	35%	20%	0%	100%

NPV incl. WC (RM m) / IRR	A	B	C	P
Base (init B 1.19m)	0.36 / 76.6%	-0.09 / 8.7%	-1.26 / -17.6%	-0.11 / 8.3%
Conservative (init B 1.27m)	0.08 / 25.9%	-0.92 / n/a	-2.33 / n/a	-0.95 / n/a
Downside (init B 1.40m)	-0.17 / n/a	-1.65 / n/a	-3.33 / n/a	-1.70 / n/a
Management claims (init B 1.07m)	0.92 / 152.2%	0.96 / 39.5%	0.51 / 21.1%	1.04 / 42.4%

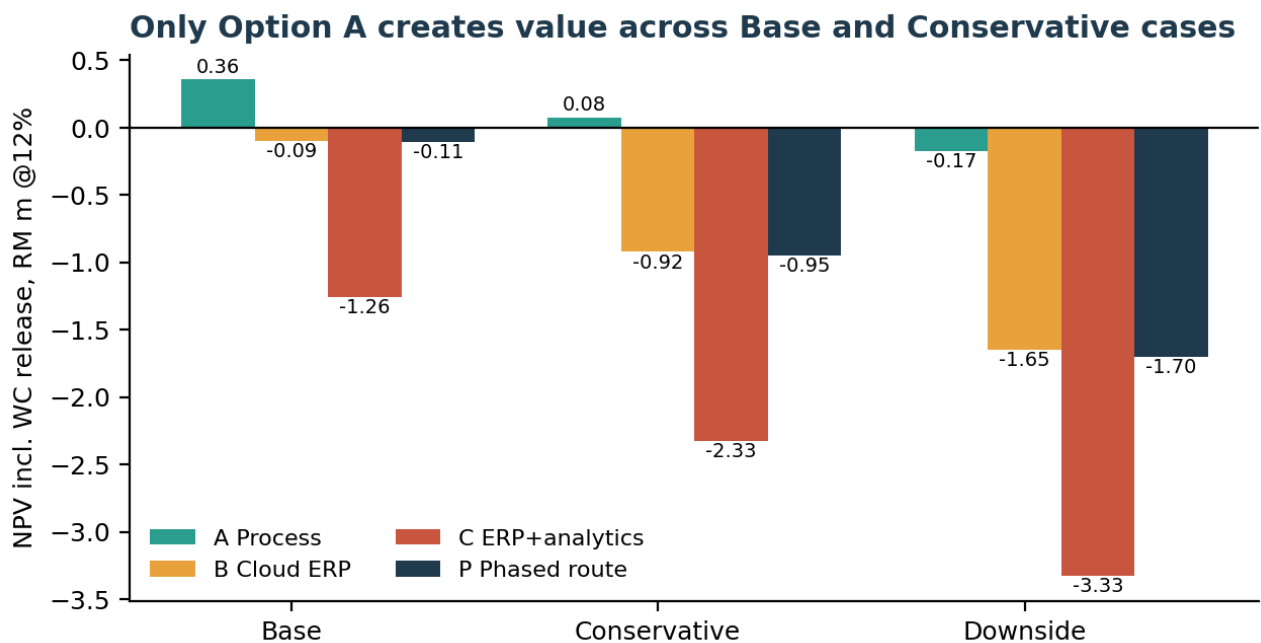


Figure 9. NPV by scenario. Option A stays positive in Base and Conservative; every ERP route is negative outside the Base and management cases.

The downside commits the budget more than the benefit: P's loaded initial investment reaches RM 1.54m (above RM 1.5m) and B's RM 1.40m. The Gate 1 ceiling of RM 1.2m on the commitment, plus fixed-price terms and a 15% holdback, is designed to keep the downside inside the cap.

12.4 Sensitivity analysis

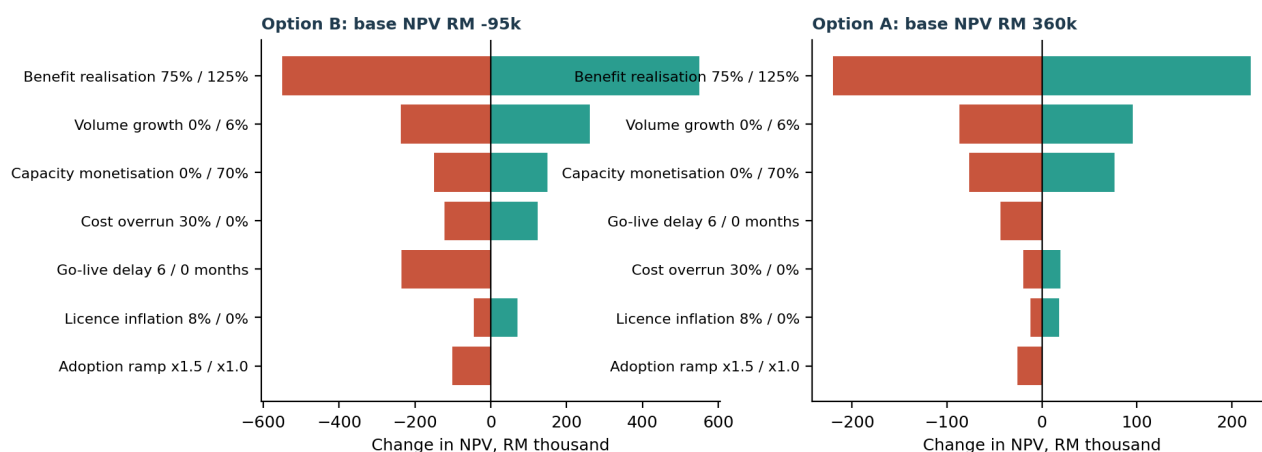


Figure 10. One-at-a-time sensitivity of NPV for Option B (left) and Option A (right).

Driver (NPV incl. WC, RM k)	Value	A	B	P
Implementation delay (months)	0	360	-95	-107
	3	338	-213	-206
	6	317	-330	-305
	9	295	-445	-401
	12	274	-558	-496
Cost overrun on vendor estimate	0	380	28	30
	0.15	360	-95	-107
	0.3	340	-218	-243
	0.5	314	-382	-425
	0.75	281	-587	-653
Benefit realisation	0.5	-80	-1,196	-1,252
	0.75	140	-645	-680
	1.0	360	-95	-107
	1.25	580	456	466
	1.5	800	1,007	1,039
Licence inflation p.a.	0	378	-24	-36
	0.05	360	-95	-107
	0.08	348	-140	-152
	0.12	331	-205	-217
Adoption (ramp multiplier)	1.0	360	-95	-107
	1.25	346	-146	-158
	1.5	334	-197	-202
	2.0	306	-284	-284
Capacity monetisation	0	284	-245	-269
	0.35	360	-95	-107
	0.7	436	56	55
	1.0	502	184	194
Volume growth p.a.	0	273	-333	-348
	0.03	360	-95	-107
	0.06	456	167	158
	0.1	597	555	550

Benefit realisation is by far the dominant driver for ERP routes: each 25 percentage points moves B's NPV by about RM 0.55m. Delay costs about RM 38k of NPV per month for B (RM 8k for A); each 10 points of overrun costs about RM 80k. Employee adoption matters less than realisation but a doubled ramp time still costs RM 0.19m.

12.5 What would have to be true for the ERP to pay

Break-even driver (NPV = 0, Base)	Option B	Option P	Credited / quoted
Benefit realisation (x of credited benefits)	1.04x	1.05x	1.00x
Annual licence (RM)	185k	181k	210k
Implementation estimate (RM)	738k	727k (+90k process/data)	820k
Inventory days delivered by ERP	67.0	66.8	68

12.6 Cost of delaying the investment by one year

One-year delay	NPV lost to deferral	Extra leakage if erosion 10%	Extra leakage if erosion 25%
Option A	RM 51k	RM 71k	RM 178k
Option B	RM 43k	RM 71k	RM 178k
Option P	RM 47k	RM 71k	RM 178k

The one-year delay cost of the ERP is small because its base-case NPV is small; the delay cost of the basic fixes is larger because they pay back in under a year and because leakage lines are rising. If the 2025-26 trend continued, the three cash lines alone would add RM 0.3-0.4m of leakage a year. This is the quantitative reason for the recommended sequencing: do not delay controls; do not rush software.

12.7 Reconciling to management's expectations

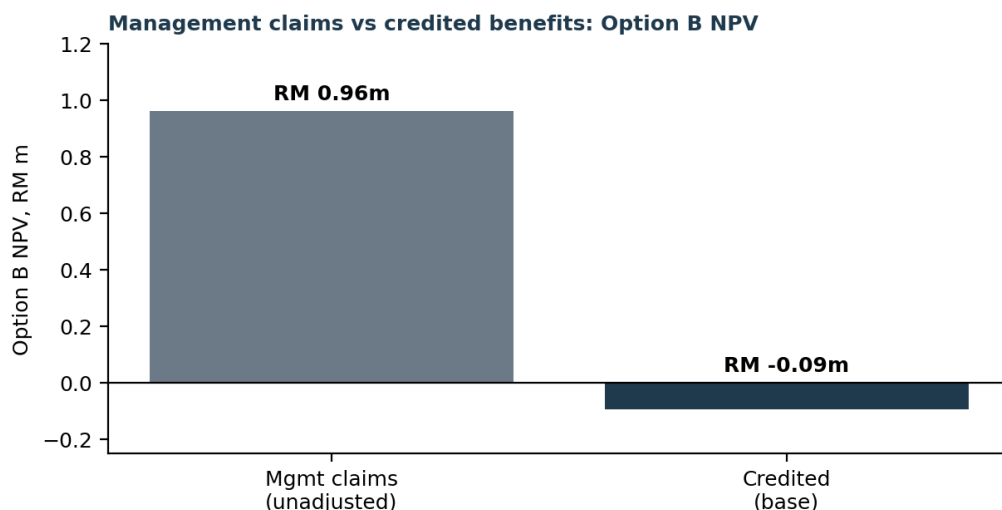


Figure 11. Option B NPV under management claims versus credited benefits.

Management's targets produce an Option B NPV of RM 0.96m (IRR 39.5%, payback 22 months), a gap of RM 1.06m to the credited case. The gap comes from: 100% monetisation of saved time, claimed accuracy and delivery gains, 60 days of inventory for C, zero overrun and zero licence inflation. These claims are not impossible, but each needs evidence that Phase 1 will generate.

13. Investment recommendation and Gate 1

Because the ERP is a near break-even, the decision is about the conditions under which it becomes a good investment. Those conditions are testable within four months and cost little to find out, which is the logic of a staged commitment.

Test at Gate 1 (month 4)	Threshold
Firm fixed-price quote for implementation components	<= RM 700k with 15% holdback
Licence and support	<= RM 180k a year; uplift <= 3% a year for 3 years
CFO-signed refreshed model at firm quotes (Base)	Total NPV >= 0 at 12%; IRR >= 15%; payback <= 36 months; commitment <= RM 1.2m
Incremental test: ERP versus Phase 1 alone	Incremental NPV >= -RM 0.1m and any shortfall covered by owner-signed scalability or customer-mandated benefits
Conservative-case check	NPV not worse than -RM 0.5m; cap holds at +25% overrun
Master data	Duplicate item codes < 2%; A/B items 100% cleansed
Operational evidence	Accuracy >= 90% in cycle-counted zones; emergency orders trending <= 9%
Validated baselines	Time study complete; named benefit owners
Capacity	ERP partner PMO contracted; backfill funded; ERP administrator identified

Scenario with commercial terms (RM 700k implementation, RM 180k licence)	NPV	IRR	Payback (mo)	Initial
Option B at target terms	RM 157k	17.8%	27	RM 1.05m
Option P at target terms	RM 143k	17.3%	28	RM 1.18m
P at target terms and ERP delivers 66 days	RM 328k	24.0%	23	RM 1.18m

Recommended decisions

- **Approve Phase 1 (Option A+):** process redesign, master-data clean-up, cycle counting, procurement controls, S&OP-lite;, report rationalisation, cyber baseline. RM 0.27m base; ceiling RM 0.30m.
- **Authorise the ERP RFP** in parallel (months 1-3) so Gate 1 has firm quotes; no ERP contract is signed before Gate 1.
- **Pre-authorise an ERP envelope of up to RM 1.2m**, released by the steering committee only if every Gate 1 criterion is met.
- **Reject Option C;** revisit analytics at Gate 3 (month 15+) once there are 12 months of clean data and inventory days are <= 70.
- **Fund enablers:** ERP partner PMO, key-user backfill, one ERP administrator, scanning hardware.
- **Run the quality programme separately** and do not count rework savings against ERP.

Is the ERP increment worth buying? (the honest test)

Incremental NPV of ERP route (P) over Phase 1 alone (A)	RM
At today's preliminary quotes	-RM 467k
At Gate 1 target terms (RM 700k, RM 180k licence)	-RM 217k
At target terms and ERP delivers 66 inventory days	-RM 32k
Illustrative unmonetised upside: ERP avoids 1 back-office hire from 2029 (RM 66k a year, PV)	+RM 126k
Illustrative unmonetised upside: ERP avoids 2 hires from 2029	+RM 252k

This is the central judgement for the board. At the target terms Option P passes every board criterion in isolation, yet it adds less value than stopping at Phase 1, because the ERP's recurring cost (about RM 0.28m a year more than Option A) is not covered by its extra recurring benefit (about RM 0.34m at 2031 volume, much less during ramp). The ERP is therefore a **strategic scalability and control investment** that breaks even on defensible numbers only when commercial terms improve and inventory days reach about 66. If Gate 1 evidence cannot show this, the right decision is to stay with Phase 1 and revisit when volume, customer requirements or complexity change.

If Gate 1 fails, Meridian retains the Phase 1 benefits (NPV about RM 0.36m, payback 11 months) and has spent under RM 0.3m. If Gate 1 passes, it proceeds with cleaner data, validated baselines and better commercial terms.

14. Implementation strategy: the 12-month roadmap

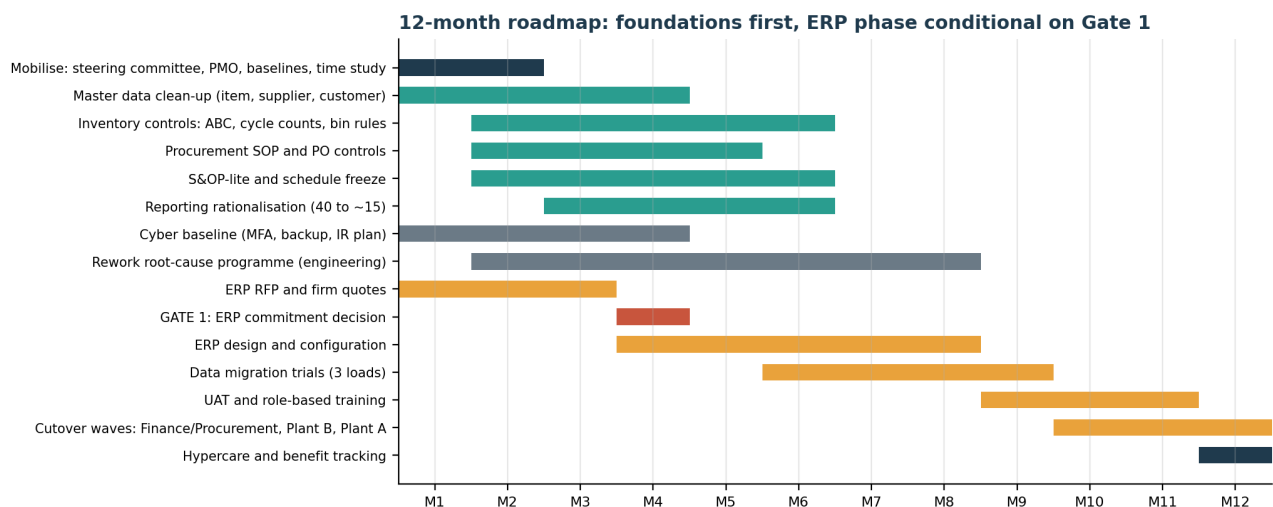


Figure 12. Roadmap. Teal = committed foundations; amber = ERP phase (conditional on Gate 1); grey = enabling; red = gates.

14.1 Sequencing and rationale

Phase	Months	Scope	Exit criterion
0 Mobilise	1-2	Steering committee, PMO, benefit owners, baselines, time study, RFP launch	Charter signed; validated baseline
1 Foundations	1-6	Master data; ABC-XYZ and cycle counts; procurement SOP; S&OP-lite; reporting rationalisation; cyber baseline	Accuracy $\geq 90\%$; duplicates $< 2\%$; adherence $\geq 86\%$
Gate 1	4	Commercial terms, readiness, refreshed model	All criteria met
2 ERP core (conditional)	4-12	Design, configuration, integrations, scanners, 3 migration trials, UAT, training, cutover waves	Go-live with reconciliation $\geq 99.5\%$
Gate 2	10	Cutover go/no-go	No severity 1-2 defects; $\geq 90\%$ trained; rollback tested
3 Optimise (option)	15+	Advanced planning, BI, forecasting (Gate 3)	Inventory days ≤ 70 ; benefits $\geq 90\%$ of model

14.2 Organisational readiness and the employee survey

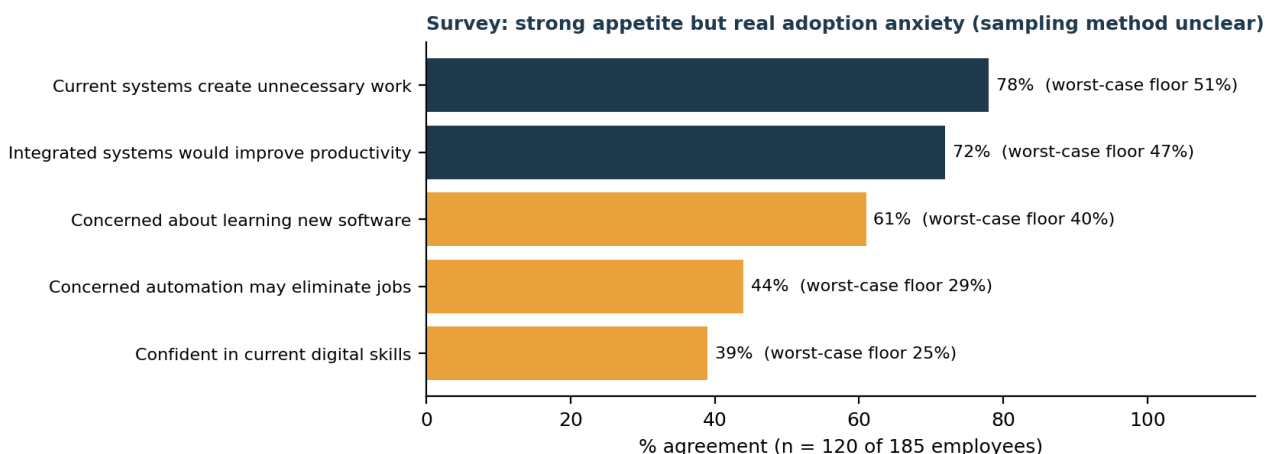


Figure 13. Employee survey (n = 120 of 185). Worst-case floor assumes all 65 non-respondents disagreed.

The survey shows 78% say current systems create unnecessary work, 72% expect integrated systems to help, but 61% worry about learning new software, 44% fear job losses and only 39% are confident in their digital skills. **It cannot be generalised without caution.** 120 of 185 employees is a 65% response, but the sampling

method is unclear. If random, the margin of error on 78% is about +/-4.4 points (finite-population adjusted); if self-selected, results will over-represent engaged office staff and under-represent shift operators. Bounding the worst case, if every non-respondent disagreed, agreement with the first statement would still be 51% of all staff, while concern about new software could be as high as 75%. We therefore treat the results as *directional* and recommend a stratified pulse survey by function and shift before the training design is finalised.

14.3 Data migration strategy

- **Scope:** items, suppliers, customers, BOM/routings, open POs and sales orders, stock balances by location, three years of transactions, GL balances and open AP/AR. Older history archived read-only.
- **Approach:** cleanse in the source (Phase 1), map, load, reconcile. Three trial loads (month 7, 8, 9) with automated reconciliation to the ledger and to a physical count.
- **Controls:** immutable pre-load backup; migration owners per domain; defect log; Gate 2 requires $\geq 99.5\%$ reconciliation.
- **Cutover:** freeze window outside peak order dates; final stock count baseline per plant; weekend load; rollback decision point.

14.4 Training and change management

- **Super-users:** two per area (16 in total), 40 hours each, 20% of their time backfilled.
- **Role-based training:** 3 to 20 hours per person depending on role; no one removed for more than 4 hours in a week; shift-based sessions; warehouse scanner practice on the floor in 30-minute blocks. Estimated total about 1,700 hours (Excel file 06).
- **Change commitments:** a written statement that ERP will not be used to justify redundancies; freed capacity redeployed to supplier management, counting and quality; recognition tied to data accuracy.
- **Communication:** monthly all-hands, weekly floor huddles, a visible KPI board per plant; feedback loop with the HR Manager's pulse survey.

14.5 Cutover plan that keeps both factories running

Wave	Month	Scope	Why this order	Safeguard
1	10	Finance, procurement, sales orders (no stock transactions yet)	Lowest production risk; builds user confidence	Four-week parallel run with Excel; daily reconciliation
2	11	Plant B inventory and planning	Worst accuracy (83%); automotive/general mix lower risk	Full count baseline; super-users on shift; rollback within 2 weeks
3	12	Plant A inventory and planning	High-precision semiconductor customers; learn from Plant B	OTD watch; no drop > 3 pp triggers pause

14.6 Governance and accountability

A steering committee chaired by the CEO (CFO, COO, IT Manager, HR Manager) meets bi-weekly in build and monthly otherwise, with decision rights over gates, scope and any budget variance above 5%. Each benefit line has a named owner: emergency buying and sourcing (Procurement Manager), inventory days and write-offs (CFO and Warehouse Manager), overtime and schedule adherence (Production Manager and COO), reporting hours (Finance), rework (Production Manager and QA, outside the ERP case). The RACI is in Excel file 06.

14.7 Risk mitigation

Top risk	L x I	Mitigation	Owner
Dirty master data migrates	5 x 5	Phase 1 clean-up; 3 trial loads; <2% duplicates gate	IT Manager
Benefits not realised	4 x 5	Time study, named owners, Gate 1 refresh, quarterly reviews	CFO
Cost overrun	4 x 4	Fixed price, 15% holdback, RM 1.2m ceiling	CFO
Production disruption at cutover	3 x 5	Plant waves, parallel run, rollback	COO
Employee resistance	4 x 4	No-redundancy statement, super-users, capped training	HR Manager
Stockouts as stock is cut	4 x 4	Class-based targets, protect A-items, stop-rule	Warehouse Manager
Ransomware / credential compromise	3 x 5	MFA, immutable backups, IR plan	IT Manager

The register contains 20 risks: 8 High inherent (average score 13.1), falling to an average of 6.6 after mitigation (Excel file 07).

14.8 KPI tracking and benefit realisation

KPI	Baseline	Month 6	Month 12	Month 24	Owner
Inventory days	79	76	74	68	CFO
Inventory accuracy	86%	90%	92%	94%	Warehouse Manager
Emergency orders (% of POs)	11%	8%	7%	5%	Procurement Manager
Duplicate POs	2.8%	1.0%	0.5%	0.3%	Procurement Manager
On-time delivery	87%	88%	90%	92%	COO
Schedule adherence	82%	86%	88%	89%	Production Manager
Reporting hours / month	260	190	150	130	Finance
Overtime (RM k annualised)	560	500	450	400	Production Manager
Write-offs (RM k annualised)	312	270	230	200	CFO
Rework	4.6%	4.3%	4.0%	3.8%	QA (not credited to ERP)

Benefits are reported monthly against the model line by line; any line below 70% of plan for two consecutive months triggers a recovery plan, and the CFO re-runs the model each quarter for the first two years.

14.9 Stakeholder positions and how to move them

Stakeholder	Position	Primary concern	What the evidence gives them	Engagement action
CEO	Supports	Competitiveness , scalability	Scalability is real but unmonetised; staged route keeps option open	Chairs steering committee; owns gate decisions
CFO	Skeptical	ROI, cash-flow exposure	Skepticism is partly right: B is break-even; case rests on inventory cash	Owns the model, Gate 1 commercial test and benefit tracking
COO	Supports ERP	Operational inefficiency	Most inefficiency is controllable first by process	Owns inventory policy, schedule freeze and cutover go/no-go
Production Manager	Prefers advanced ERP	Scheduling	APS deferred to Gate 3; schedule governance now	Leads S&OP-lite; defines planning requirements
Procurement Manager	Supports cloud ERP	Purchasing automation	35% PO time credit; capacity redeployed to supplier management	Owns requisition SOP and emergency-order codes
Warehouse Manager	Concerned	Disruption	Class-based stock cuts; stop-rule at 45 stockouts a month; Plant B first	Owns cycle counts, bin rules, count windows
IT Manager	Cautious	Integration, cybersecurity	Master data and security gates come before migration; partner PMO and backfill	Owns data governance, cyber baseline, vendor assurance
HR Manager	Concerned	Resistance, training	Survey is directional; no-redundancy statement; capped training	Owns pulse survey, training plan, change network

The CFO and COO disagree about whether to buy; the recommended route lets both be right. The COO gets a funded, fast programme; the CFO gets a hard commercial and evidence gate before any large spend.

14.10 Post-implementation benefit realisation

Benefits are not assumed; they are earned and verified. Each model line has an owner, a measure, a source of evidence, and a trigger for corrective action. The CFO reports to the steering committee monthly and re-runs the financial model each quarter for the first two years using actual results.

Benefit line	Owner	Measure	Evidence source	Trigger / action
Emergency procurement premium	Procurement Manager	Emergency orders and premium cost by cause code	PO log, supplier invoices	Premium > plan for 2 months: root-cause review, supplier-date tracking
Write-offs / obsolescence	CFO / Warehouse Manager	Write-offs by SKU age and cause	GL, ageing report	Slow-mover list not actioned in 30 days
Overtime avoided	Production Manager	Overtime hours vs 2024 intensity, by plant	Payroll, schedule log	Overtime > plan with adherence < 86%
Inventory days (one-time cash)	CFO	Days and RM released vs ramp	Inventory valuation / COGS	< 70% of planned release for 2 quarters
Capacity released	Line managers	Hours released and where redeployed	Time sample, role plans	Capacity not redeployed in 60 days: reassign tasks
Sourcing / price compliance	Procurement Manager	Price variance and spend under contract	Spend cube	No savings after 2 quarters
OTD retention	COO	OTD by customer; lost-order log	Delivery log	OTD < 85% for 2 weeks
Reporting hours	Finance Manager	Hours per month	Time sample	> 150 hours after month 12

Reporting discipline. The benefit report distinguishes recurring savings (EBITDA), one-time cash (balance sheet) and capacity (hours), exactly as the model does, and shows each against plan. It also records costs: licence escalation, change requests and internal backfill. Credit for a benefit is withdrawn if its enabling control (for example cycle counts) lapses.

Appendix D. Benefit build and cash flows by option (Base case)

Steady-state annual benefit at 2026 volume, before ramp, realisation and growth, derived from the pools in Section 9 and the credited capture rates.

Benefit line (RM per year)	A	B	C
Emergency procurement premium	40,040	110,111	130,131
Inventory write-offs / obsolescence	26,988	74,217	87,711
Overtime avoided	16,925	59,236	84,623
Rework (traceability/version control only)	0	24,931	41,552
Sourcing / price compliance	9,275	37,100	46,375
Customer retention (OTD)	24,300	60,750	85,050
Capacity released (PO, reporting, search) x monetised share	22,340	53,939	63,397
Total recurring benefit before holding cost	139,868	420,284	538,839

Recurring cost at steady state (2027 prices): A RM 70k; B RM 310k; C RM 545k. Net recurring benefit therefore is about RM 0.10m (A), RM 0.15m (B) and RM 0.02m (C) before growth and ramp. This arithmetic is the core reason ERP options depend on one-time inventory cash.

Option A (RM thousand)	t0	2027	2028	2029	2030	2031
Initial investment	(270)					
Operating benefits (incl. holding cost)		69	155	162	166	171
Recurring costs		(47)	(73)	(76)	(79)	(82)
Net recurring cash flow		22	83	86	88	90
WC release		279	152	13	13	14
Liquidation haircut		(14)	(8)	(1)	(1)	(1)
Total cash flow	(270)	287	227	98	100	103
Cumulative cash flow	-270	18	245	343	444	546
Discounted cumulative	-270	-13	168	238	302	360

Option B (RM thousand)	t0	2027	2028	2029	2030	2031
Initial investment	(1,193)					
Operating benefits (incl. holding cost)		5	343	483	498	513
Recurring costs		(217)	(320)	(332)	(343)	(355)
Net recurring cash flow		-212	23	152	155	158
WC release		96	1,090	36	37	38
Liquidation haircut		(5)	(55)	(2)	(2)	(2)
Total cash flow	(1,193)	-121	1,058	186	190	193
Cumulative cash flow	-1,193	-1,314	-255	-70	120	313
Discounted cumulative	-1,193	-1,301	-457	-325	-204	-95

Option C (RM thousand)	t0	2027	2028	2029	2030	2031
Initial investment	(1,927)					
Operating benefits (incl. holding cost)		0	227	609	638	657
Recurring costs		(331)	(563)	(582)	(602)	(623)
Net recurring cash flow		-331	-336	27	36	35

Option C (RM thousand)	t0	2027	2028	2029	2030	2031
WC release		0	839	716	47	48
Liquidation haircut		(0)	(42)	(36)	(2)	(2)
Total cash flow	(1,927)	-331	461	707	81	80
Cumulative cash flow	-1,927	-2,258	-1,798	-1,091	-1,010	-930
Discounted cumulative	-1,927	-2,223	-1,856	-1,352	-1,301	-1,256

Option P (phased) (RM thousand)	t0	2027	2028	2029	2030	2031
Initial investment	(1,316)					
Operating benefits (incl. holding cost)		69	361	483	498	513
Recurring costs		(191)	(320)	(332)	(343)	(355)
Net recurring cash flow		-122	41	152	155	158
WC release		279	907	36	37	38
Liquidation haircut		(14)	(45)	(2)	(2)	(2)
Total cash flow	(1,316)	143	903	186	190	193
Cumulative cash flow	-1,316	-1,173	-271	-85	104	298
Discounted cumulative	-1,316	-1,189	-469	-337	-217	-107

All figures reproduce in the Excel model (Assumptions!C4 = 1). Discounting at 12% with investment at t0 and operating flows at year-end.

Appendix A. Assumptions register

Assumption	Value	Source / status
Paid hours per FTE per year	1,920	Analyst assumption
Procurement FTE cost	RM 66,000	Case data
Finance/admin and warehouse FTE cost	RM 55,000 / RM 48,000	Analyst assumption - confirm with HR
Material share of COGS	50%	Analyst assumption - spend cube needed
Rework conversion-cost share	40%	Analyst assumption
Search hours per stockout / per adjustment	5.0 / 0.5	Analyst assumption - time study
Emergency procurement RM 420k is premium cost	Yes	Interpretation (RM 795 per order)
Normalisation benchmark	2024 intensity x revenue growth (1.22x)	Method choice
Cash holding cost of inventory	2% of value	Analyst assumption
Liquidation haircut on released stock	5%	Analyst assumption
OTD: revenue retained per pp	0.10% of revenue at 25% margin	Analyst assumption - no customer data
Volume growth	3% base (history ~10%)	Analyst assumption
Discount rate	12%	Board
Capacity monetisation	35% base; 20%; 0%	Analyst assumption
Vendor costs	As case file	Preliminary, not quotations
Backfill / hardware / cyber set-up (B)	RM 120k / 90k / 40k	Analyst assumption - not in vendor estimates
Tax	Excluded	Confirm with CFO; costs and benefits both taxable, so IRR is less affected than NPV

Appendix B. Data requests to close open questions

- Commodity price index and purchase price variance by supplier, 2024-2026; customer price pass-through clauses (tests the CFO hypothesis).
- Stock-movement and adjustment logs; ageing and ABC-XYZ analysis (splits the RM 1.57m excess).
- Four-week time-and-motion study: PO processing, material search, report preparation.
- Emergency order log with root-cause codes; duplicate PO list with values.
- Line-stoppage and late-delivery log; customer penalties or lost-order evidence.
- Rework log by cause (calibration, material, operator, design).
- Firm vendor quotations including licence escalation clauses and hardware.
- Payroll breakdown by role to replace analyst hourly rates.
- Receivables and payables ageing (further working-capital upside not modelled).

Appendix C. Deliverables index

File	Purpose
01 Executive presentation (PPTX, 15 slides)	Investment committee decision
02 Current-state diagnostic (PDF)	Operational problem assessment
03 Technology evaluation matrix (XLSX)	Weighted matrix, constraints, TCO, vendor scorecard
04 Process maps (PDF)	Current and future workflows
05 Five-year financial model (XLSX)	Live-formula appraisal; scenario selector
06 Implementation roadmap (XLSX)	Roadmap, gates, KPI tracker, RACI, training
07 Risk register (XLSX)	20 risks with scoring and heat map
08 Final consulting report (this PDF)	Comprehensive recommendation

Appendix E. Definitions and formulas

Term	Definition used in this report and model
Inventory days	Average inventory / COGS x 365. 2026: $8.1 / 37.1 \times 365 = 79.7$, reported as 79
Working-capital release	Days reduced x COGS per day. One-time cash; no EBITDA effect
Avoidable pool	2026 cost less 2024 cost scaled by revenue growth (1.221x); the part attributable to loss of control rather than volume
Capture rate	Share of the pool an option is credited with removing by steady state
Capacity vs cash	Hours released are capacity; only the monetised share (35% base) enters the cash flows
Ramp	Linear monthly build from go-live to steady-state benefit; annual factor is the average of 12 monthly values
NPV	Sum of cash flows $\times 1/(1.12)^t$, t_0 = start 2027, flows at year-end 2027-2031
IRR	Rate at which NPV is zero
ROI (5-year)	(Sum of 2027-2031 cash flows - initial investment) / initial investment
Simple payback	Months until cumulative undiscounted cash flow turns positive (interpolated within year)
Discounted payback	As above, using discounted cash flows
Loaded initial investment	Vendor estimate x (1 + overrun x complexity factor) + internal backfill + cyber set-up + scanning hardware
Gate	A pre-agreed decision point with objective criteria, owned by the steering committee

How to use the Excel model

- Set the scenario in Assumptions!C4 (1 Base, 2 Conservative, 3 Downside, 4 Management claims); all sheets recalculate.
- Edit blue cells only: lever values, option parameters, historical data. Yellow cells are key levers.
- Summary shows the live board test; Scenarios_Sensitivity holds pasted results from a Python replica that reconciles to the model to the ringgit.
- To test a vendor quote at Gate 1, change the vendor and licence cells in Assumptions and read the Summary sheet.