TOOLS ASSESSMENT · SAMPLE DELIVERABLE

Forward Deployed Engineering Report

Meridian Mechanical Ltd.

Commercial HVAC and mechanical contracting · Concord, Ontario

ENGAGEMENT	ISSUED	THIS DOCUMENT
Four working sessions	August 2026	Highlights excerpt

SAMPLE REPORT

Meridian Mechanical is a fictional composite built from patterns common to Canadian mid-market contractors. No real client data appears in this document.

Verdicts, and how sure we are of them

Forward-deployed engineering means engineers working inside your real systems — your accounting file, your dispatch software, your spreadsheets — and shipping answers from the inside rather than advising from a distance.

A Tools Assessment is four working sessions of about an hour each, plus analysis between them. Everything here comes from what was said in those sessions, the documents the client supplied, and our own analysis. No time-and-motion study, no telemetry, no ride-alongs. Where a number matters and is unvalidated, we mark it and say what validating it would take.

EVERY SYSTEM GETS ONE VERDICT

KEEP	works — leave it alone
CUT	stop paying, stop using
REPLACE	wrong tool for the job you now do
ADD	capability you do not have

EVERY NUMBER GETS ONE MARKER

STATED	the client told us — unvalidated
OBSERVED	seen in a system, export, or document
ESTIMATED	derived; the assumption is printed beside it

ABOUT THIS EXCERPT

The full report runs to roughly twenty pages: the complete stack inventory with annual cost and owner, four processes examined individually, the structured-data remediation sequence, and a nine-month roadmap. What follows is the part worth reading first — the findings, the verdicts, one process in full, and what we would do on Monday.

What we found

Meridian is a profitable $14M contractor running on paper timesheets and thirty-one years of institutional memory. The software is not the problem. The problem is that almost nothing the company knows about its customers' equipment is written down in a form a computer can read.

$164,000
ESTIMATED
a year in maintenance renewals lapsing, or renewing without the escalation the contract allows

$235,000
ESTIMATED
of working capital released once, by invoicing in two days instead of eleven

31 hrs
STATED · UNVALIDATED
of office time a week re-typing and chasing information that already exists

The three moves that matter

1 **Put the 118 maintenance agreements on a calendar with an owner.**
Sixty percent of revenue renews from one spreadsheet and the Coordinator's memory. Four lapsed unnoticed in twenty-four months.

2 **Give every piece of equipment a number.**
Roughly 2,900 units have no identity in any system, so service history cannot attach to a machine. No software and no AI works around that.

3 **Stop the paper travelling. Invoice in two days, not eleven.**
The billing document currently rides to the office in a truck. Capture it on the phone at the site instead.

The sequence, and what we are not saying

Write down what you own and who owns it, then make the paper stop moving, then put AI on top of the record you have built — in that order, because each step produces what the next one reads.

We do not recommend replacing QuickBooks.

It closes the books and the Controller knows it. Replacing accounting in the middle of an operations change is how companies lose a year and a Controller at once.

We do not recommend an enterprise field service platform.

At 38 people you would be paying for multi-entity consolidation, route optimization and a partner-led configuration budget you do not need. The mid-market product does 70% of the job at a quarter of the first-year cost.

We recommend against AI in four of the nine places we were asked to consider it.

Payroll approval, safety sign-offs, certification compliance and contract invoicing are all better served by a rule than a model. A wrong answer there costs you an underpaid employee, an uninsured technician on a roof, or an argument with the CRA.

Software spend goes up, not down.

About $19,800 a year more than today. Anyone presenting a modernization like this as a cost reduction is misrepresenting it. The case is the renewals, the cash released, and the key-person risk removed.

THE SINGLE HIGHEST-LEVERAGE ITEM

The asset registry. Every automation in this report is a function that takes a record and returns something useful: a renewal reminder needs an agreement with a date; a technician asking what was done to this unit needs the unit to exist. If the record is missing you do not get an error — you get a confident guess.

Fourteen systems, fourteen verdicts

Costs are from invoices the client supplied OBSERVED. The full report carries a justification for each; the pattern is that every system was bought correctly for the business Meridian was, and each is now doing a job it was not designed for.

SYSTEM	COST/YR	VERDICT
QuickBooks Desktop Enterprise	$6,000	KEEP
Ceridian Powerpay	$3,900	KEEP
Microsoft 365 Business Standard, 38 seats Paid for, used as email only	$8,900	KEEP
Google Drive and Dropbox Third storage system; none authoritative	$3,000	CUT
Two personal ChatGPT Plus accounts Only once the governed replacement is live	$780	CUT
Jobber → commercial service platform No concept of an asset or a contract entitlement	$4,700	REPLACE
Six per-estimator Excel workbooks One shared, versioned assembly library	$0	REPLACE
Paper timesheets → mobile capture Re-keyed twice today. By Q1.	$0	REPLACE
Break-fix MSP → managed IT with asset inventory	$14,400	REPLACE
Asset registry — ≈2,900 units Mostly technician labour, not licence	—	ADD
Maintenance renewal pipeline	—	ADD
E-signature	$1,100	ADD
Retrieval over 31 years of service history Last, not first — needs unit identifiers	$2,600	ADD
Governed AI access, 8 seats	$3,400	ADD

Service report to invoice

7.5 hrs/week STATED

TODAY

The paper service report travels to the office in a truck when the technician next comes in. It is then matched to a job, checked against the timesheet, priced by the Coordinator, reviewed by the Controller on one of her three days a week, and invoiced.

Service revenue, 12 months	$9,600,000	OBSERVED
Per calendar day	$26,300	ESTIMATED
Work date → invoice date	11 days	ESTIMATED
Target with mobile capture	2 days	
Released once	**≈$235,000**	9 × $26,300

ROOT CAUSE

The billing document is a piece of paper that must physically travel. Every other delay is downstream of that. The Controller's three-day week is a real constraint but not the cause — she is waiting for the paper too.

FIX

Complete the report on the phone before leaving site, with parts, hours and signature attached. Contract work invoices on a rule; time-and-materials goes to one queue the Coordinator clears daily. Target 95% of jobs invoiced within two business days.

NO AI

Invoicing is arithmetic against a contract — hours × rate, parts × markup, entitlement applied. There is one correct answer and a rule produces it every time. A model would add variance to the one process where variance is indefensible to a customer and to the CRA. Drafting the *narrative* section of the service report is a different job, and AI is right for that.

What we heard that wasn't said

Three observations from the space between the problem as described and the problem as it behaves. None came from a document. They are offered as readings, not verdicts.

The stated problem is dispatch. The actual problem is memory.

We were engaged to look at dispatch efficiency, and dispatch is where the frustration is expressed. But every account of a bad week traced back to the same thing: nobody knew what happened at that site last time. The second truck roll. The part that was not on the van. The customer who had already been told the unit was failing. Scheduling was never the failure; arriving without history was. Better dispatch software will not fix it. An equipment record will.

The founder wants to step back, and approves every quote over $10,000.

Both were said in session 1, twenty minutes apart, and neither defensively. The threshold has not moved in about a decade while the jobs got bigger, so the review became a bottleneck without anyone deciding it should. Our reading is that the wish to step back is genuine and what is missing is not willingness but a rule he trusts. A margin floor is that rule: it keeps the control he cares about, which is never quoting work at a bad price, and gives up the one he does not, which is seeing every job.

Nobody mentioned the ChatGPT use until session 2, and then in passing.

It came up as an aside, not a disclosure, from a technician slightly surprised anyone cared. Read plainly: a useful tool arrived, the route to getting it approved was unclear or slow, so two people bought it themselves and got on with the work. That is a signal about how long the distance is between someone here finding something useful and the company knowing about it. Whatever gets bought from this report, the more valuable change is making that distance shorter.

Deterministic or probabilistic

Two kinds of automation get sold as one thing. Rules produce the same output every time and can be traced when wrong. Models produce judgment, handle work no rule can describe, and are occasionally wrong in ways you cannot predict. Both belong here. Putting one where the other belongs is the expensive mistake.

DETERMINISTIC

Rules. No model.

Contract invoicing
entitlement × schedule

Payroll export
approved hours only

Renewal reminders
date arrives, notice fires

Certification expiry
hard stop at dispatch

PROBABILISTIC

Judgment, human on top.

Service report drafting
technician signs it

Estimate assembly suggestions
estimator prices it

Questions from equipment history
source document always shown

Site notes from a walkthrough
senior technician corrects

Three questions to ask, in order

1 · **Can I write the rule down?** If you can state it as "when X, do Y" without hand-waving, build the rule. Cheaper, faster, and it will not surprise you.

2 · **What happens the day it is wrong?** If the answer involves an employee's pay, a regulator, an insurer, or someone on a roof — no model.

3 · **Does the record it needs exist?** If it reasons over free text in three storage systems, you are buying a confident guess.

The first "no" is your answer.

Three scoped builds

The report terminates in options, not general advice. Each is independently purchasable. Build A is deliberately small — the low-risk way to find out whether this works before committing to anything larger.

BUILD A · START HERE

Renewal Control

$9,000 – $14,000
3–4 weeks · depends on nothing

118 agreements become structured records with dates, values, escalation terms and owners; 214 customer records collapse to payer and site; notices fire at 120, 90 and 30 days. Closes the ≈$164,000 a year of renewal leakage and produces the first clean customer hierarchy as a by-product.

BUILD B · THE MAIN MOVE

Asset Registry and Field Capture

$45,000 – $70,000
4–5 months · after a clean hierarchy

Service platform configured; asset registry defined and the tagging programme run with the technicians; mobile time and service capture live; invoicing rules; QuickBooks and Powerpay integrations. Closes the billing lag — ≈$235,000 of working capital — and the equipment identity gap that blocks everything else.

BUILD C · ONLY AFTER B

Service History Retrieval

$25,000 – $40,000
2–3 months · after Build B

Scanned service reports and manuals indexed against unit identifiers; technician question-and-answer with the source document always shown; report drafting and estimate suggestions with approval built in. Closes the key-person risk. Run first, it would answer from free text across three storage systems — confidently, and often wrongly.

The Tools Assessment fee is credited in full against any build that follows. If none does, the report is yours and the findings stand on their own.

If you do nothing else, do this

Build the maintenance contract renewal list this week, in a spreadsheet, and give it to one named person. It needs no software, no budget, and nobody from outside the company.

1 **Pull the 118 signed agreements.**
One row each: customer, site, annual value, renewal date, escalation clause, notice period, owner. About a day and a half — two thirds of the dates are already in the Coordinator's spreadsheet.

2 **Sort by date and look at the next 120 days.**
Anything inside 90 days gets a call this week. Anything already lapsed gets a call today.

3 **Check every row against its escalation clause.**
Nine are under-escalated. Apply the increase the contract already permits at the next renewal.

4 **Name one owner and put a weekly review in their calendar.**
Thirty minutes. The Operations Manager. Not a committee, not "the office."

HOW YOU KNOW IT WORKED

In 30 days: 118 agreements on one list with an owner, and no renewal inside 90 days unreviewed. If that has not happened, nothing later in the report will happen either — and the honest reading is that the work does not yet have the internal attention it needs.

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