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SAMPLE DELIVERABLE

Site Assessment Analysis and Report

Scale-Up Readiness

Tessaline Water Technologies | Fenwick Pilot Line

PREPARED FOR

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Vice President of Manufacturing

PREPARED BY

Webineering

SITE VISIT · REPORT ISSUED

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Sample deliverable. This report is a composite. Company names, people, locations, and figures have been changed to protect client confidentiality. The method, analysis, and recommendations reflect our work.

How to Read This Sample

This is a sample of the report a Webineering site assessment delivers. It is a composite. Company names, people, locations, and figures have been changed to protect client confidentiality. The method, the analysis, and the recommendations reflect our work.

This sample shows the assessment for a venture-backed company preparing to scale. What each part shows:

Report section	What it shows
3.1–3.2 Yield and the material change	Yield by process step, and how an unqualified material substitution moved it
3.3–3.4 Process windows and traceability	Which settings are defined, who holds the rest, and what a customer will ask to see
3.5–3.6 Readiness and the capital plan	A readiness score and two ramp plans compared on time and capital
5 Stage-gated plan	A 12-month plan with gates investors and the board can track

Engagement at a Glance

Item	Detail
Question we were asked	Can our pilot line get to 5,000 modules a year, and is our $4.2M capital plan the right way to get there?
Duration	1-week pre-visit data review, 2 days on site, 2 weeks of post-visit analysis
Evidence base	Travelers and test records for 1,130 modules started from March to May 2026, 8 months of lamination yield, the capital plan and vendor quotes, a contract manufacturer quote, 14 structured interviews
Deliverables	This report, a scale-up readiness scorecard, the ramp model behind Section 3.6, and a stage-gated 12-month plan

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5 Stage-Gated Plan (12 Months)
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1 Executive Summary

Tessaline can reach a 5,000-module annual run rate in about 11 months, seven months sooner than its current plan, and defer $1.6M of its $4.2M capital budget. The path runs through yield. Today only 42% of the modules the pilot line starts pass final test, and lamination alone rejects 38% of the modules that reach it. Raising lamination yield to 85% and the other five inspected steps from 68% to 80% combined, by defining settings for the three undocumented steps, makes the existing coating line produce enough good modules to delay the second one.

The current plan adds capacity first. It waits about 15 months for a second coating line to come on, then scales a process that still scraps more than half of what it starts.

Where We Stand

Measure	Current	Month 3 gate	Month 12 target
Modules passing final test, share of starts	42%	55%	68%
Lamination first-pass yield	62%	80%	85%
Process steps with defined settings windows	8 of 11	11 of 11	11 of 11
Modules traceable to material lots	None	All new builds	All builds
Annualized capacity for good modules	About 1,200	About 1,600	About 5,800
Cost per good module	$2,850	$2,200	$1,650

What to Do Now (0–90 Days)

- Recover lamination: requalify the new spacer material or return to the previous one, and set press temperature, pressure, and dwell from a designed experiment.
- Write down the settings windows for coating, lamination, and casing, and move them from two people's memory into controlled instructions.
- Start lot traceability on every new module: membrane roll, spacer lot, and epoxy lot on the traveler.
- Put every material change through a qualification step before it reaches the line.
- Run a daily yield review by step with the production lead and the process engineer.

Capital and the Build-or-Outsource Decision

Buy the two lamination presses, winding automation, casing epoxy dispense system, and test stands as each gate in Section 5 is met. Defer the $1.6M second coating line to the month-12 gate, where demand beyond 2027 decides it; deferring it extends cash runway by about two months. Keep coating and lamination in-house, where the company's know-how sits, and decide by month 6 whether a contract manufacturer should take module assembly, using the criteria in Section 3.7.

2 Context & Method

Tessaline Water Technologies makes spiral-wound membrane modules for industrial water reuse in food and beverage and microelectronics plants. It closed a Series B in early 2026 and has signed its first commercial order: 1,800 modules for delivery in 2027, with a pipeline that requires a 5,000-module run rate by the end of that year.

Attribute	Detail
Company	Venture-backed; about 70 people across R&D, production, commercial, and administration
Pilot line	One roll-to-roll coating line, one lamination press that bonds the feed spacer to each membrane leaf, edge sealing, winding, casing, leak and performance test; one shift of 18 production staff
Output	About 180 good modules shipped in the last 12 months, mostly pilot and qualification units
Process	11 steps from incoming inspection to performance test; paper travelers
Capital plan	$4.2M: second coating line $1.6M, two lamination presses $0.9M, winding automation $0.7M, test stands $0.6M, casing epoxy dispense $0.4M
Alternatives under review	A contract manufacturer quote for module assembly

The CEO asked whether the pilot line can reach 5,000 modules a year, whether the capital plan is the right route, and what should stay in-house. We traced yield through every step for 1,130 modules started over three months, reviewed eight months of lamination results, watched every step of the line in operation, reviewed the capital plan and contract manufacturer quote, and interviewed 14 people from the founders to production technicians.

3 Findings

3.1 Yield Across the Line

Five of six inspected steps run at 90% or better. Lamination runs at 62%, and because losses compound, only 42% of modules started pass final test. At the anchor order's volume, that means starting about 4,300 modules to ship 1,800, and scrapping about $1.5M of material a year.

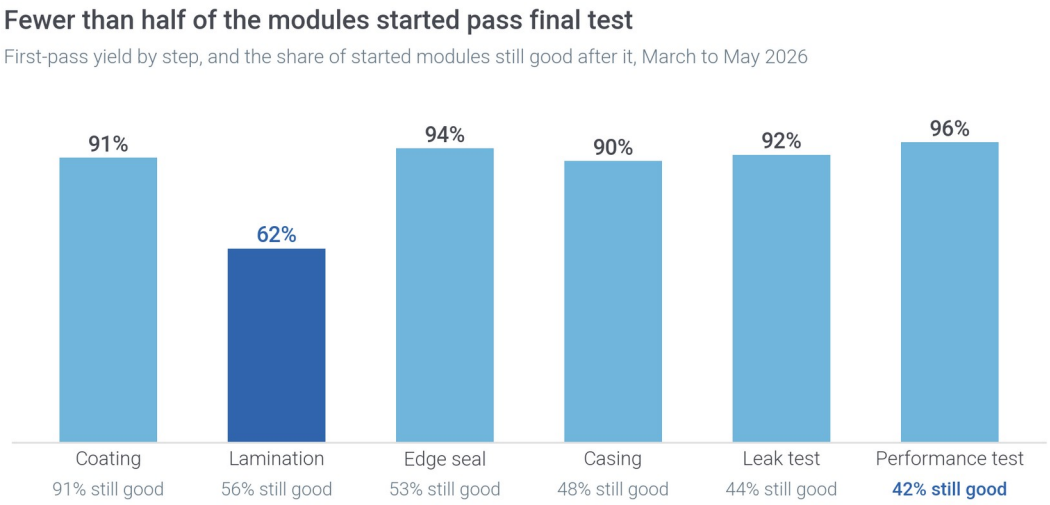


Figure 3.1 · Module travelers and test records, March – May 2026 · Values adjusted for confidentiality

3.2 Lamination and the Material Change

Lamination yield held between 74% and 78% until February, when the company switched spacer suppliers for a 22% cost saving. The new spacer has a wider thickness tolerance, and the press settings were never adjusted for it. Yield fell to 64% in March and has stayed near 62%. Wrinkles and edge delamination make up 81% of lamination rejects since the change. Before the change the same two defects caused about half of a 24% reject rate. Incoming thickness control and a settings window built for the new spacer address both, which is why the month-3 gate is set at 80%, above the pre-change level.

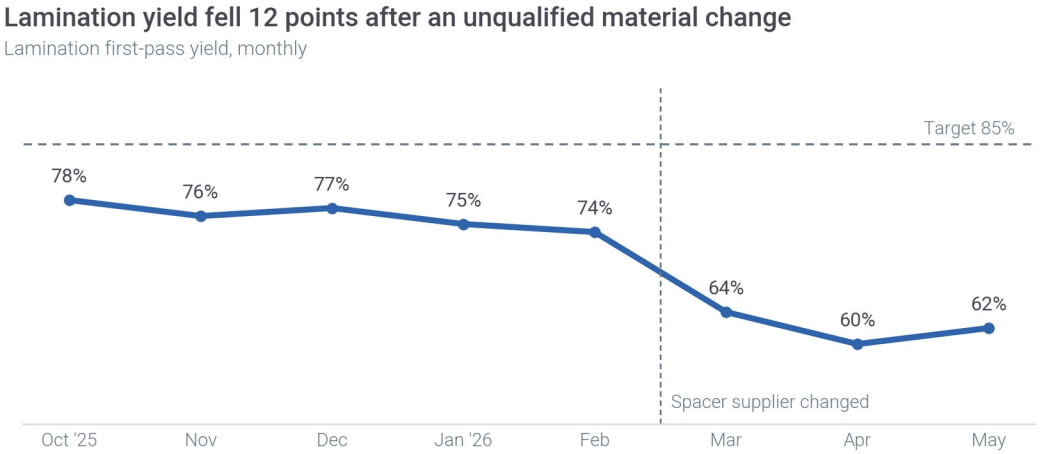


Figure 3.2 · Lamination yield records, October 2025 – May 2026 · Values adjusted for confidentiality

KEY INSIGHT

The spacer change saved about $15 a module on material and costs about $270 per good module in scrapped material. Nobody saw the trade because material cost and yield are reported by different people.

3.3 Process Windows

Eight of 11 steps have documented settings with limits. Three do not: coating line speed and gap, lamination temperature, pressure, and dwell, and casing epoxy mix ratio and cure humidity. Those settings live with the founding process engineer and one senior technician, who adjust them by feel.

The travelers record whether a module passed each step, but not the settings used to make it, so there is no record to learn from. The last designed experiment on lamination ran in 2025, on the old spacer.

IMPORTANT

Two people hold the settings for the three steps that decide yield. If either is out when the line moves to two shifts, yield will follow.

3.4 Traceability

No module can be traced to the membrane roll, spacer lot, or epoxy lot it was made from. The anchor customer's qualification requires lot genealogy for every delivered module, and the first qualification lot is due in four months.

3.5 Scale-Up Readiness

We scored eight areas from 1 to 5 against what a 5,000-module operation needs. The average is 2.1. Equipment and capacity and the planning and cost model are closest to ready. Traceability and yield are furthest away.

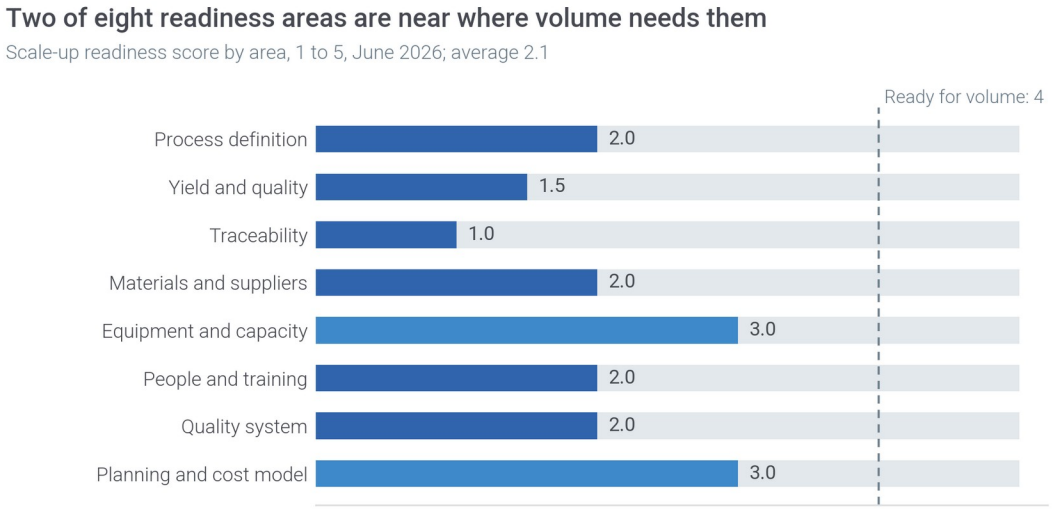


Figure 3.3 · Webineering scale-up readiness assessment, June 2026 · Values adjusted for confidentiality

3.6 Two Ways to Reach 5,000 Modules a Year

The current plan adds a second shift at month 4 and waits for the second coating line, which has a nine-month lead time and about six months of installation and qualification, so it reaches full output around month 18. Yield stays near 45%, so capacity for good modules sits at about 2,600 a year until the new line arrives.

A yield-first plan adds the same second shift, lifts yield to 55% by month 3 and 68% by month 8, brings on the new lamination presses by month 7, and moves to three shifts at month 10. It passes 5,000 good modules a year at month 11 on one coating line.

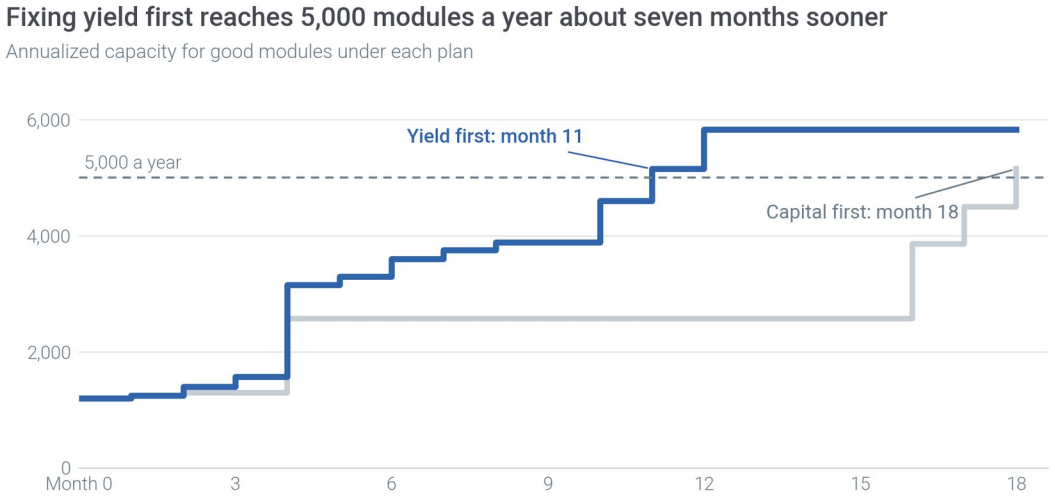


Figure 3.4 · Webineering ramp model built from line rates, yields, and equipment lead times · Values adjusted for confidentiality

DATA CONFIDENCE NOTE

The ramp model uses measured line rates for one shift and assumes new crews reach 85% of first-shift yield within six weeks. A slower crew ramp moves month 11 to about month 13 and still finishes well ahead of the current plan.

3.7 Build or Outsource

Step	Recommendation	Why
Coating and lamination	Keep in-house	This is where the company's know-how and most of its yield loss sit. A contract manufacturer would learn the process at the company's expense.
Edge seal and winding	Keep in-house for now	Tied closely to lamination quality; revisit after month 9
Casing, housing assembly and test	Decide by month 6	A contract manufacturer is viable once the casing window is defined and lot traceability runs end to end

4 Action Plan (0–90 Days)

The 90-day plan recovers lamination, writes down the process, starts traceability, and puts changes under control. Gate 1 at month 3 is 80% lamination yield and 55% of modules passing final test.

4.1 Recover Lamination

Action	Owner (suggested)	Timeline	Expected outcome
Run lamination trials on the old and new spacer side by side; requalify the new one or return to the old supplier	Process Engineer	0–30 days	Root cause of the February drop confirmed
Designed experiment on press temperature, pressure, and dwell for the chosen spacer	Process Engineer	15–45 days	Settings window defined; lamination yield to 80%
Incoming thickness check on every spacer lot	Quality Lead	0–30 days	Out-of-tolerance lots stopped before the press

4.2 Write Down the Process

Action	Owner (suggested)	Timeline	Expected outcome
Document settings windows for coating, lamination, and casing; record actual settings on every traveler	Process Engineer, Senior Technician	0–60 days	11 of 11 steps defined; settings recorded for every module
Train two more technicians on each of the three steps, with sign-off	Production Lead	30–90 days	No step depends on one person

4.3 Traceability and Change Control

Action	Owner (suggested)	Timeline	Expected outcome
Add membrane roll, spacer lot, and epoxy lot to every traveler; label modules with a build number	Quality Lead	0–30 days	All new modules traceable to material lots
Material and process change control: no change reaches the line without a qualification run and sign-off	VP Manufacturing	0–30 days	No repeat of the spacer change

4.4 Run the Line on Yield

Action	Owner (suggested)	Timeline	Expected outcome
Daily yield review by step with the production lead and process engineer	Production Lead	0–14 days	Losses seen the day they happen
Report cost per good module monthly, with material cost and yield together	Finance, VP Manufacturing	0–30 days	Material savings judged against yield
Hire and train the second-shift crew against the qualification record	VP Manufacturing	30–90 days	Second shift running at month 4

5 Stage-Gated Plan (12 Months)

Each gate is a set of measures the board and investors can check before the next spend. Capital moves only when the gate before it is met.

Gate	Month	Measures to pass	What it releases
Gate 1	3	Lamination yield 80%; 55% of starts pass final test; 11 of 11 steps defined; all new builds traceable	Second shift; lamination press orders confirmed
Gate 2	6	62% of starts pass final test on both shifts; change control in use; casing window defined	Build-or-outsource decision for assembly; winding automation; test stands if test stays in-house
Gate 3	9	68% of starts pass; new presses commissioned; customer qualification lots accepted	Third shift hiring; casing epoxy dispense system if casing stays in-house
Gate 4	12	5,000-module run rate; cost per good module $1,650 or less	Second coating line decision, against demand beyond 2027

Webineering supports companies through this kind of plan on a monthly retainer with no minimum term, measured against the baseline in this report at each gate.

6 Appendices

Appendix A: Data Sources

Source	Description	Period
Travelers and test records	1,130 modules started, with pass or fail at each step	Mar – May 2026
Lamination yield records	Monthly lamination results and reject codes	Oct 2025 – May 2026
Material records	Supplier specifications, lot certificates, and the spacer change	Last 12 months
Capital plan and quotes	Equipment quotes, lead times, and the contract manufacturer quote	Current
Line observation	Every step observed in operation; line rates timed	Jun 9–10, 2026
Interviews	14 structured interviews from founders to technicians	Jun 9–10, 2026

Appendix B: Terms

Term	Meaning
Designed experiment	A planned set of trials that varies settings together to find the window that gives good parts
First-pass yield	Share of parts passing a step the first time
Lot genealogy	A record linking each finished module to the material lots it was made from
Settings window	The documented range for each machine setting that produces good parts
Spacer	The mesh that holds the feed channels open between membrane leaves; in Tessaline's design it is laminated to each leaf before winding
Traveler	The record that moves with each module through the line

Appendix C: Financial Impact

Item	Basis	Estimate
Capital deferred	Second coating line held until demand beyond 2027 requires it	$1.6M
Cash runway extended	$1.6M deferred at current burn	About 2 months
Material scrap avoided at anchor volume	Starts for 1,800 good modules fall from about 4,300 to 2,650	About $1.0M a year
Earlier output	Extra good-module capacity the yield-first plan adds in its first 18 months	About 2,300 modules
Cost per good module at month 12	Yield-first plan against $2,850 today	$1,650

These are order-of-magnitude estimates built from line data and vendor quotes and have not been audited. They assume demand absorbs the earlier output, which depends on the anchor customer's delivery schedule and on the pipeline converting.