Spotting & Fixing Inefficiencies in Your Brewery Business

A 60-minute practical playbook for operations, packaging, and finance

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- MBA in Global Business Admin, University of North Carolina at Chapel Hill (Kenan Flagler Business School) (2008)
- 1997-2009 Public Accounting, Small Businesses, Not for Profits, Caterpillar Accounting and Pricing Manager
- 2009-2010 Dogfish Head Controller
- 2011-2014 Mother Earth Brewing CFO
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Agenda

- 1) Why efficiency matters
- 2) Map your value stream end-to-end
- 3) Brewing & cellaring bottlenecks
- 4) Packaging & changeover losses
- 5) Utilities, QA, inventory & yield
- 6) KPI dashboard, ROI & action plan

Definition: Efficiency vs. Effectiveness

- Efficiency
  - Doing the work with minimal waste (time, cost, materials).
- Effectiveness
  - Doing the right work to hit strategy (mix, quality, margins).
- We need both: stop making the wrong beer efficiently.

The 8 Wastes in a Brewery (LEAN)

- Defects (off-spec, QA holds, rework)
- Overproduction (brewing ahead of demand)
- Waiting (idle tanks, idle lines, approvals)
- Non-Utilized Talent (staff not empowered)
- Transportation (unnecessary moves)
- Inventory (excess malt/hops, WIP beer)
- Motion (poor layout, extra walking)
- Extra Processing (over-filtration, redundant steps)

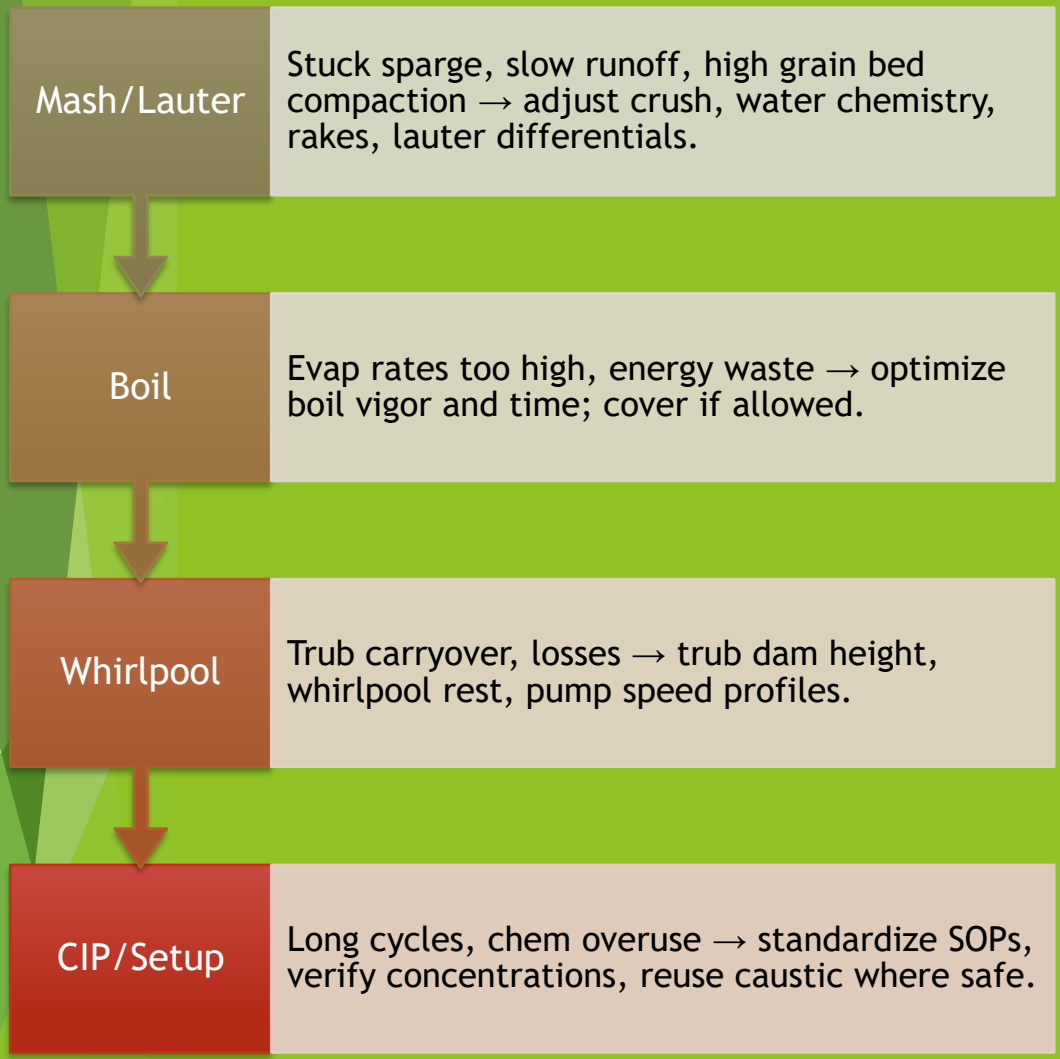
Map the Value Stream (10 min exercise)

- Scope: PO to cash—procurement → brewhouse → cellar → packaging → ship → invoice → payment
- Swimlanes: who does what; annotate data flow (BOMs, batch records)
- Capture cycle time, wait time, WIP, scrap %, yield at each step
- Identify constraints using actual calendar capacity

Find Your Weakest Link (Theory of Constraints)

- Looking for bottlenecks, resource shortages, and inefficiencies
- Locate the resource with the longest effective cycle time
- Check buffers before the constraint; look for starvation/blocking
- Confirm with schedule adherence
- Exploit: maximize uptime on the constraint
- Subordinate: align upstream/downstream to it
- Elevate: add capacity after low-cost fixes
- Constraints often hide in the cellar as tank turns or in packaging as changeovers or microstops

Brewhouse Losses & Fixes



Cellar Bottlenecks & Fixes

Tank	Tank turns too slow: verify yeast health/viability and pitch rate
Calibrate	Fermentation variability: calibrate probes; standardize oxygenation
Right	Brite tank availability: right-size vs. packaging rate; pre-cool beer
Standardize	CIP cycles: standardize; use validated time/temp/chem matrix
Dry	Dry-hop losses: optimize contact time; reduce O2 pickup

Packaging Losses (Overall Equipment Effectiveness)

- Availability: breakdowns, long changeovers, waiting for beer or materials
- Performance: microstops, speed losses, jams, labeler drift
- Quality: DO pickup, seam integrity, fill height variance, leakers
- Baseline OEE = Availability × Performance × Quality
- https://www.oee.com/calculating-oee/

Changeover Reduction (Lean)

- Separate internal vs. external tasks (do as much as possible while running)
- Create shadow boards & pre-staged SKUs
- Standardize torque, seam settings, label rolls, coder formats
- Aim: 30–50% reduction in changeover time in 60 days

Utilities: Energy & Water

- Steam: insulate lines, fix traps, schedule heat loads
- Chilled water/glycol: setpoints, maintenance
- Hot liquor & heat recovery: target thermal balance
- Water usage: track bbl water per bbl beer (W/BBL)

Quality Losses You Can See

- Dissolved oxygen spikes at transfers/packaging—measure at every transfer
- CO2 volumes drifting—calibrate; check temp/pressure charts
- Seam & fill variation—tighten control plans and sampling frequency
- Sensory rejections—close the loop to process settings and raw materials

Yield & Scrap

- Track: Brewhouse extract yield, cellar losses, dry-hop losses, packaging loss %
- Set BOM losses per SKU; compare planned vs. actual
- Target: reduce total losses by 1–2% pts within 90 days

Inventory & Procurement

- ABC items: malt/hops/liners/crowns—set min/max and safety stock
- FIFO/LIFO for hops and adjuncts; track lot traceability
- Standardize supplier specs; qualify alternates
- Reduce SKU complexity where margins don’t justify changeovers

Taproom & Distribution Inefficiencies

- Taproom: menu engineering, pour variance, draft system losses
- Labor planning vs. demand; queue times and idle labor
- Wholesale: route density, drop size, returns/expiries
- Keg cycle time and loss rate; deposits and tracking
- **Tie product mix to margin per tap-hour**

Starter KPI Dashboard (Weekly)

KPI	Target	Last Week	Owner
Brewhours/BBL	< 0.7		Head Brewer
Fermentation Days (median)	↓		Cellar Lead
OEE – Canning Line	> 55%		Packaging Mgr
DO at Fill (ppb)	< 50		QA
Total Loss % (brew→pack)	-1 pt/quarter		Ops
Water/BBL	< 5.0		Maintenance

Financial Lens

- Margin per constraint hour (brewhouse hour, packaging hour)
- Contribution margin by SKU including true losses and labor
- Cash conversion cycle (DSO + DIO − DPO)
- Link KPI moves to P&L and cash impact

ROI Model – Example Inputs

Lever	Baseline	Improved	Delta
Changeover time (min)	45	25	-20
OEE (%)	42	55	+13
Total loss (%)	9.5	7.5	-2.0
Water/BBL	6.0	4.8	-1.2
Energy/BBL ($)	3.10	2.60	-0.50

Quick Wins (≤30 days)

- Daily 15-min standup with yesterday’s 3 KPIs and top issue
- Standard work for CIP (validated times and chem levels)
- Meter water & DO at each transfer; fix top 3 leaks/microstops

Medium Moves (30–90 days)

- Cellar capacity model; adjust pitch rates and tank turns
- Supplier alternates identified; cost impacts measured
- Line balancing and microstop elimination sprints

Bigger Bets (90–180 days)

- Add brite tank or packaging buffer to relieve constraint
- Heat recovery loop; chiller optimization
- Develop keg tracking system
- SKU rationalization with margin-mix review

Standard Work & Visual Management

- One-point lessons (OPLs) at each station
- Visual SOPs for setup, teardown, and CIP
- Tiered daily management: cell → area → plant

People & Culture

- Cross-train to cover the constraint
- Recognize improvement ideas; run monthly Kaizen review (continuous improvement)
- Tie incentives to safety, quality, delivery, cost (SQDC)

Health & Safety First

- Lock-out/Tag-out on all maintenance
- CO2 and confined space procedures
- Chemical handling and PPE standards
- Never trade safety for speed

Templates You Can Use Today

- Value stream map (VSM) sheet
- OEE worksheet with loss tree
- KPI dashboard + owner tracker
- Document KPIs in ninety.io

Your Turn – Mini Workshop

- Write your top 3 wastes you can see this week
- Pick one: draft a countermeasure and owner
- Define how you'll measure success in 14 days

Common Pitfalls to Avoid

- Too many KPIs; no owners
- Launching tools without training or follow-up
- Chasing speed before stability and quality
- Ignoring the real constraint

Wrap-Up & Next Steps

- Start with mapping; measure what matters weekly
- Fix the constraint first; reduce changeovers & microstops
- Translate ops wins into cash and margin
- Schedule a 30-day review

Q&A

- What’s the one inefficiency you’ll tackle first?