CAPABILITY PAPER 04 / BEVERAGE BOTTLING

Find the losses between the stops

Connect OEE, downtime investigations and Bad Actors to the improvements that recover productive capacity.

A bottling facility runs three packaging lines. Line 2 rarely suffers a long breakdown, yet its shift output consistently trails plan. Short interruptions around the labeler, reduced running speed and rejects accumulate into a substantial production loss.

Valak brings the OEE view together with equipment episodes. The agents investigate repeated interruptions, while Bad Actors ranks recurring problems using downtime and configured cost. The team can move from a shift-level number to the event pattern and equipment responsible for the loss.

THE VALAK APPROACH

See the loss. Follow the evidence. Fix the repeat offender.

Powered inside the operation

A fleet of AI agents works across live signals, operating history and plant context. Valak’s specialized models run on-premises, keeping the intelligence close to the operation with no external AI API fees.

Inside this paper: operating context, agent workflow, a sample deliverable and a worked value model.

BEVERAGE BOTTLING / OPERATING CONTEXT

Start with the operating question

Which recurring problem should the team fix first to recover the most good output?

Operating scope	Connected context
Critical assets	Line 2 filler, conveyors, labeler, inspection station and packer; parallel lines provide operating context.
Production inputs	Planned production time, runtime, ideal cycle time or rated rate, total count, good count and machine states.
Supporting records	Product and format, shift context, downtime episodes, maintenance findings and unit contribution.

Connect the systems already in use

Use the existing automation and historian connections as the live-data foundation. Add equipment relationships and relevant operational records so each agent can relate a change in one asset to the process around it. Read-only connections leave the control system in charge of the process.

Give every finding an operating context

Equipment identity, units, timestamps and operating state travel with the evidence. Comparable running conditions matter: an intentional rate change, a startup and a steady production run tell different stories. The agent follows the asset in its process context, while the team receives the evidence needed to act.

BEVERAGE BOTTLING / WORKFLOW

A coordinated fleet of agents

A performance agent organizes availability, performance and quality. Episode agents connect losses to event windows and equipment context. The Bad Actors view prioritizes repeat offenders by frequency and consequence. An investigation agent supports the selected improvement; after the work, the team compares equivalent production conditions.

Step	From OEE to a focused improvement
Measure	Calculate the shift baseline from time, rate and count inputs.
Locate	Separate availability loss, running-speed loss and quality loss.
Connect	Link repeated stops to labeler episodes and their connected equipment trends.
Prioritize	Use Bad Actors to rank recurring downtime and estimated cost.
Investigate	Review the recurring labeler behavior and document the corrective work.
Follow up	Compare the next equivalent run and watch the original pattern for recurrence.

Specialized models, continuous responsibility

The models power the reasoning and tool use; the agents carry the workflow across the event. They retrieve data, connect context, maintain the case and prepare the next useful output. On-premises execution supports continuous coverage without external AI API charges.

BEVERAGE BOTTLING / DELIVERABLE

What the team receives

PRODUCTION REVIEW / LINE 2 / 8-HOUR SHIFT

The largest OEE loss is availability. Investigate recurring labeler interruptions first. Review the linked episodes, upstream accumulation and downstream starved states together so one line interruption is not counted as multiple independent losses.

Metric	Baseline	After improvement
Planned time	480 minutes	480 minutes
Runtime	408 minutes	432 minutes
Availability	85%	90%
Performance	90%	92%
Quality	98%	99%
OEE	74.97%	81.972%

The case stays with the work

Compare the same bottle format, rated rate and planned production duration. Keep the downtime classification consistent. The investigation record explains the intervention, while the OEE calculation shows the change in productive capacity. Save the resolved recurring pattern as a watch to help sustain the improvement.

BEVERAGE BOTTLING / VALUE MODEL

Make the value visible

Use the operating inputs below to translate the workflow into engineering capacity or production opportunity. Substitute the site's own volumes, time and economics when applying the model.

Calculation input	Worked operating example
Ideal production	300 bottles/minute x 480 minutes = 144,000 bottles/shift.
Baseline good output	144,000 x 0.85 x 0.90 x 0.98 = 107,956.8 bottles/shift.
Improved good output	144,000 x 0.90 x 0.92 x 0.99 = 118,039.68 bottles/shift.
Recovered capacity	10,082.88 additional good bottles/shift; at $0.08 contribution each, about $807/shift.

Reading the calculation

OEE rises by 7.002 percentage points, a 9.34% relative increase in good-output capacity at the same ideal rate. Counts above are calculated from the stated ratios before rounding. At 250 equivalent shifts, the capacity opportunity is about $201,658 when the additional output is sold; this is not gross sales revenue.

Put the workflow to work

Start with a line whose losses can be tied to reliable time, state and count inputs. Use OEE to locate the loss, Bad Actors to prioritize the recurrence, and the investigation package to guide the fix. Pattern rules keep the resolved problem under watch.

See this workflow on your plant data.
valak.ai/contact

Valak | 24/7 critical-asset monitoring. Automatic investigation packages. Pattern rules. OEE and Bad Actors.