

3D Digital Twin for Bottling

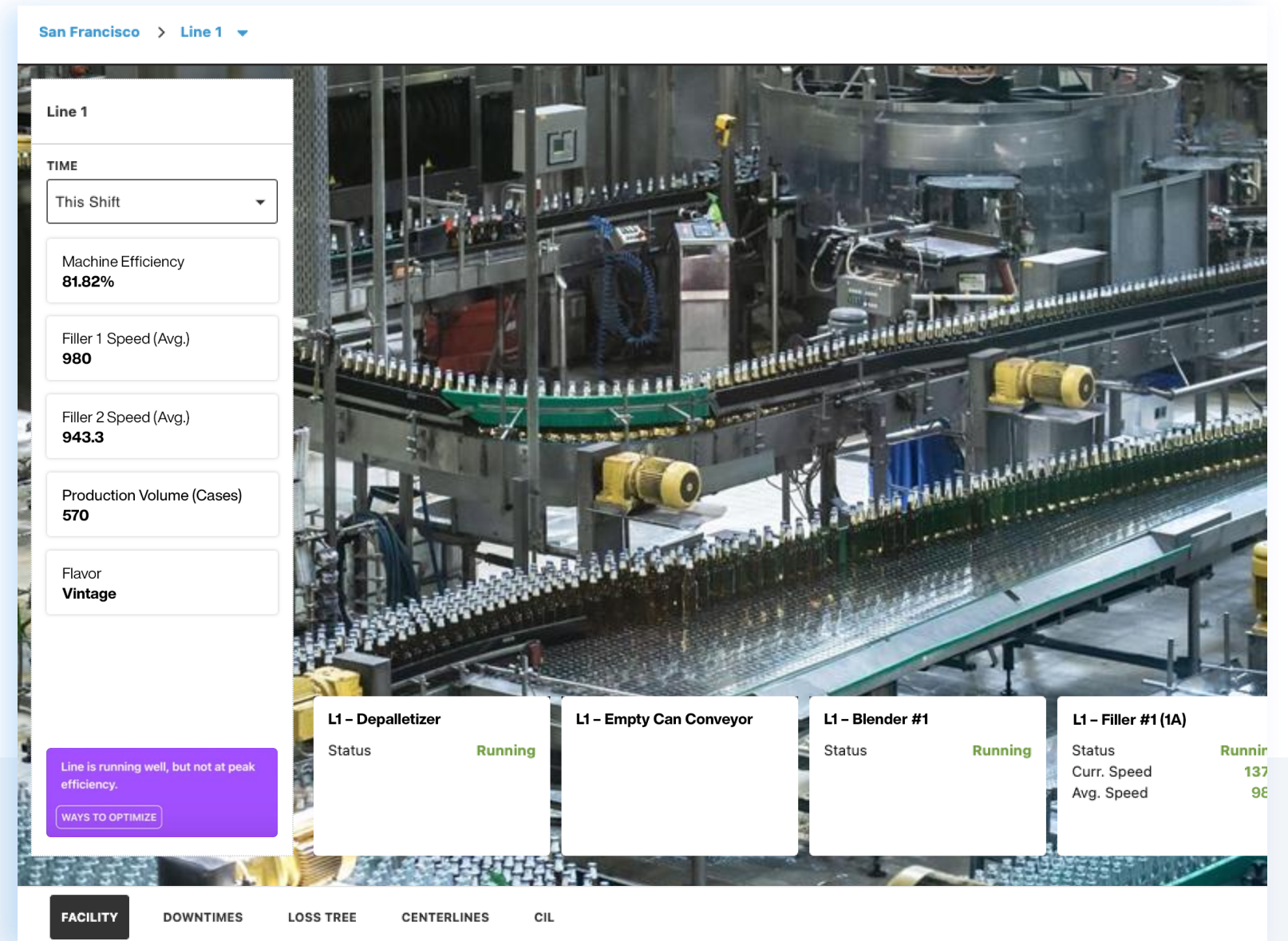
**Sight Machine Factory Operate With NVIDIA
Omniverse Enables 3D Visualization of Line
Performance, Rapid Troubleshooting, and Root
Cause Analysis**

Performance Improvement Use Case: Bottling Industry

Line Running Well, but Opportunity to Improve

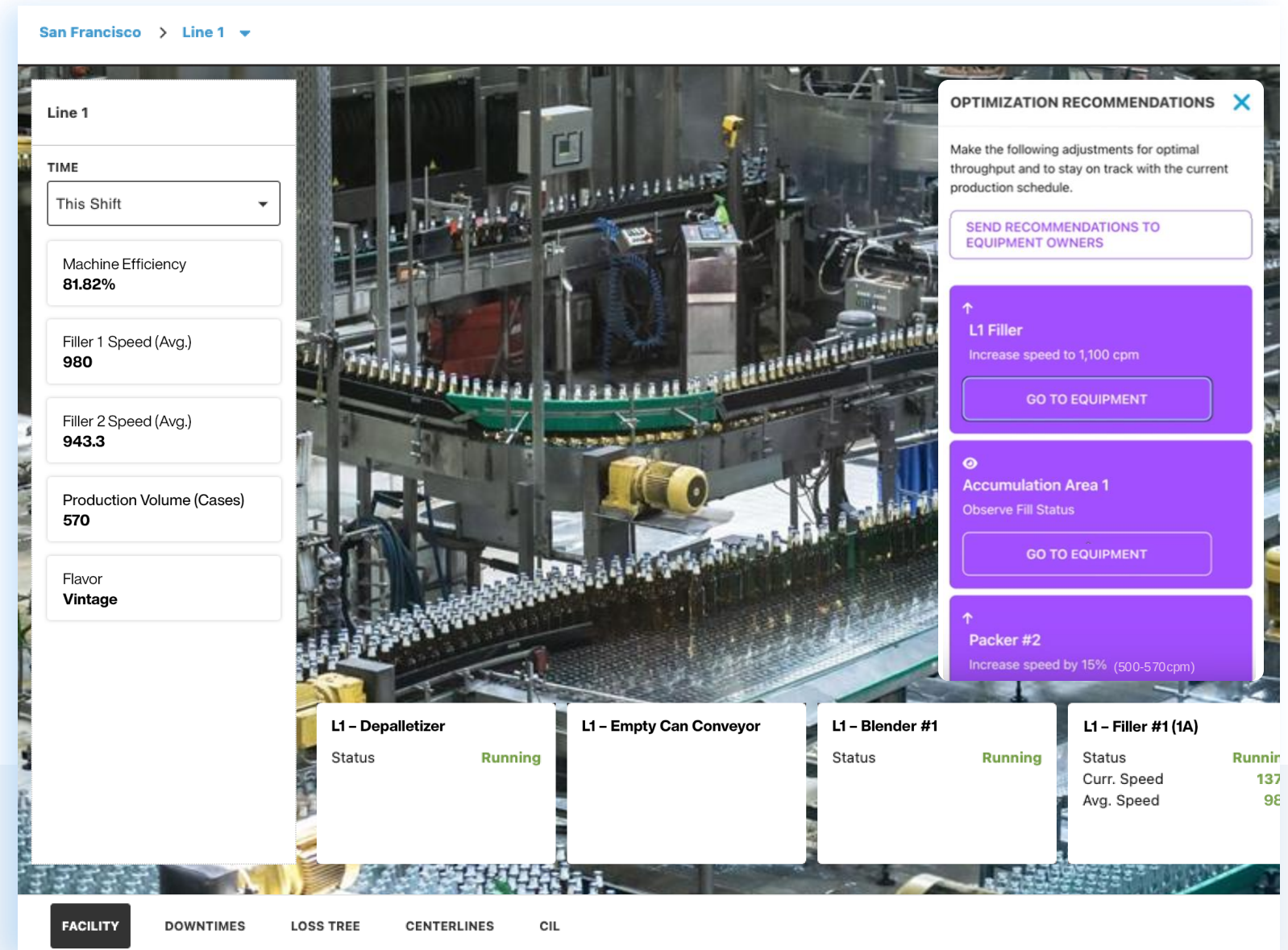
- Bottling line is running well — all machines are operating smoothly
- USLE (Line Efficiency) is on target, and production schedules are on track.
- However, there are performance improvement opportunities to maximize throughput

Next: Click on **WAYS TO OPTIMIZE**



Performance Improvements at Line Level

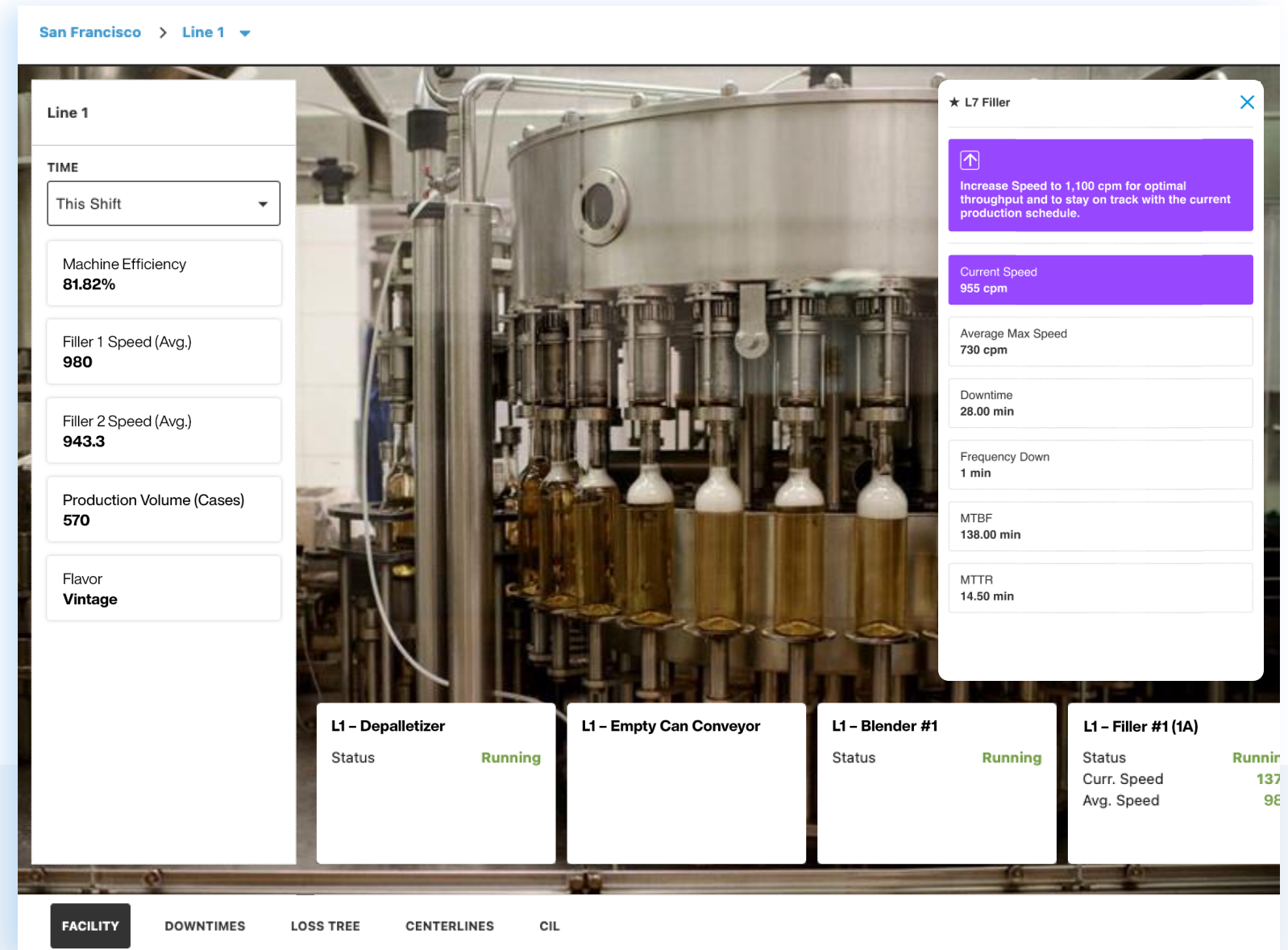
- Sight Machine surfaces “Optimization Recommendations” panel with suggestions for targeted improvements across line
- Specific machines are highlighted:
 - Filler
 - Accumulation Area 1
 - Packer
- Opportunity improvements are visually highlighted on the 3D visual, right panel



Next: Click on [GO TO EQUIPMENT](#) at L1 Filler

Focus First on the Critical/Bottleneck Asset (Filler)

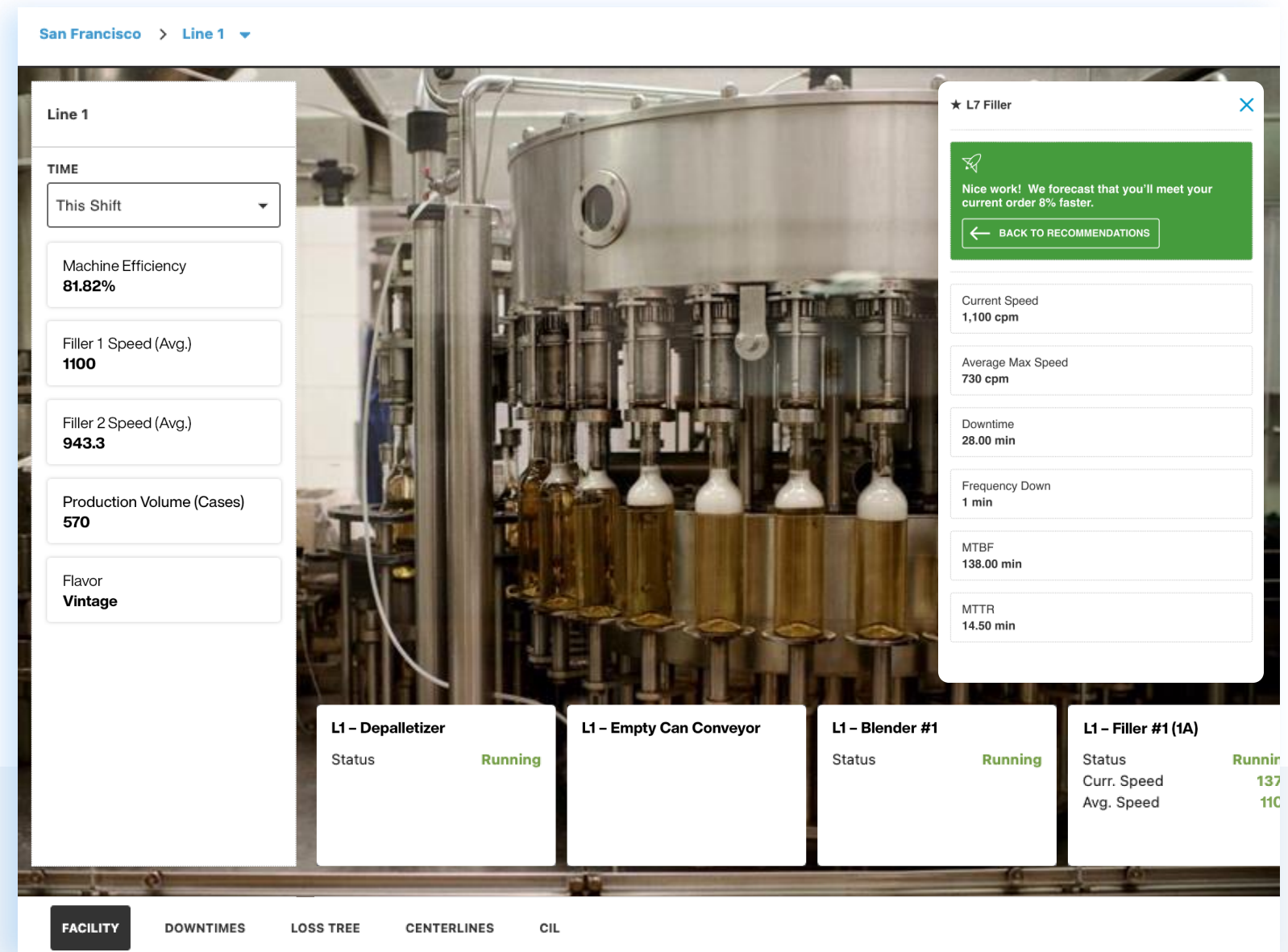
- The Filler is the critical asset on the line (aka the bottleneck asset) and determines its maximum throughput
- The Filler's sub-optimal speed is highlighted, with a recommendation:
Increase Filler Speed to 1,100 cpm for optimal throughput and to stay on track with current production schedule



Surface Filler Speed Increase Based on Operator Action

- The operator has increased the speed of the Filler to the Sight Machine-recommended value
- Surface the Filler Speed, now at 1,100 cpm
- Highlight the impact of this increased speed
 - *You will now meet your current order 8% faster*
- Recommendation followed; Filler turns from purple to green

Next: Click on [Back to Recommendations](#)



Line View: Downstream Impact

- Downstream machines must now adapt to the higher production pace at the Filler machines
- Two machines downstream from the Filler are highlighted as focus areas for targeted improvements:
 - Accumulation Table 1
 - Packer

San Francisco > Line 1

Line 1

TIME

This Shift

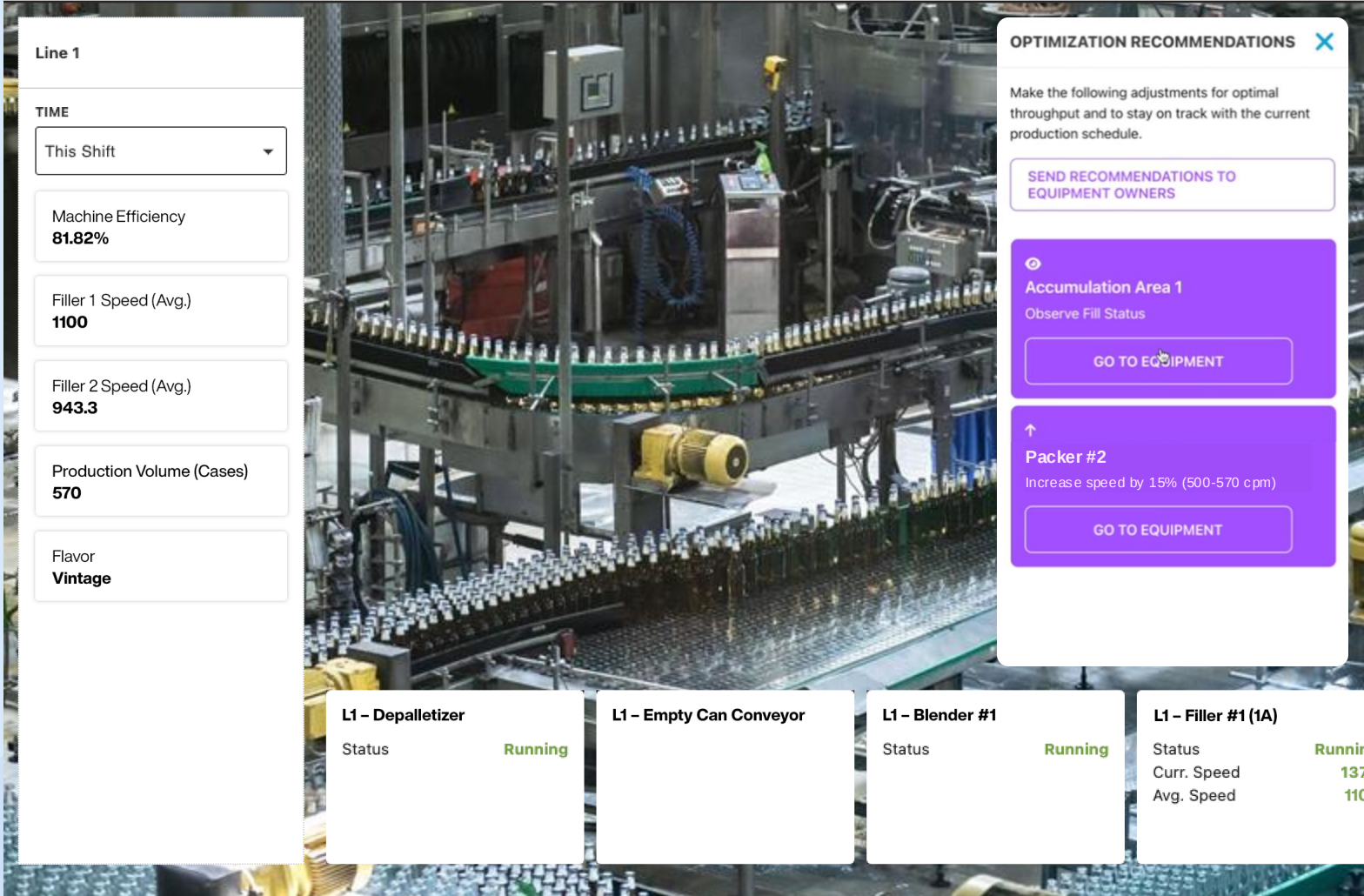
Machine Efficiency
81.82%

Filler 1 Speed (Avg.)
1100

Filler 2 Speed (Avg.)
943.3

Production Volume (Cases)
570

Flavor
Vintage



OPTIMIZATION RECOMMENDATIONS

Make the following adjustments for optimal throughput and to stay on track with the current production schedule.

SEND RECOMMENDATIONS TO EQUIPMENT OWNERS

Accumulation Area 1
Observe Fill Status
GO TO EQUIPMENT

Packer #2
Increase speed by 15% (500-570 cpm)
GO TO EQUIPMENT

L1 - Depalletizer

Status **Running**

L1 - Empty Can Conveyor

L1 - Blender #1

Status **Running**

L1 - Filler #1 (1A)

Status **Running**

Curr. Speed **137**

Avg. Speed **110**

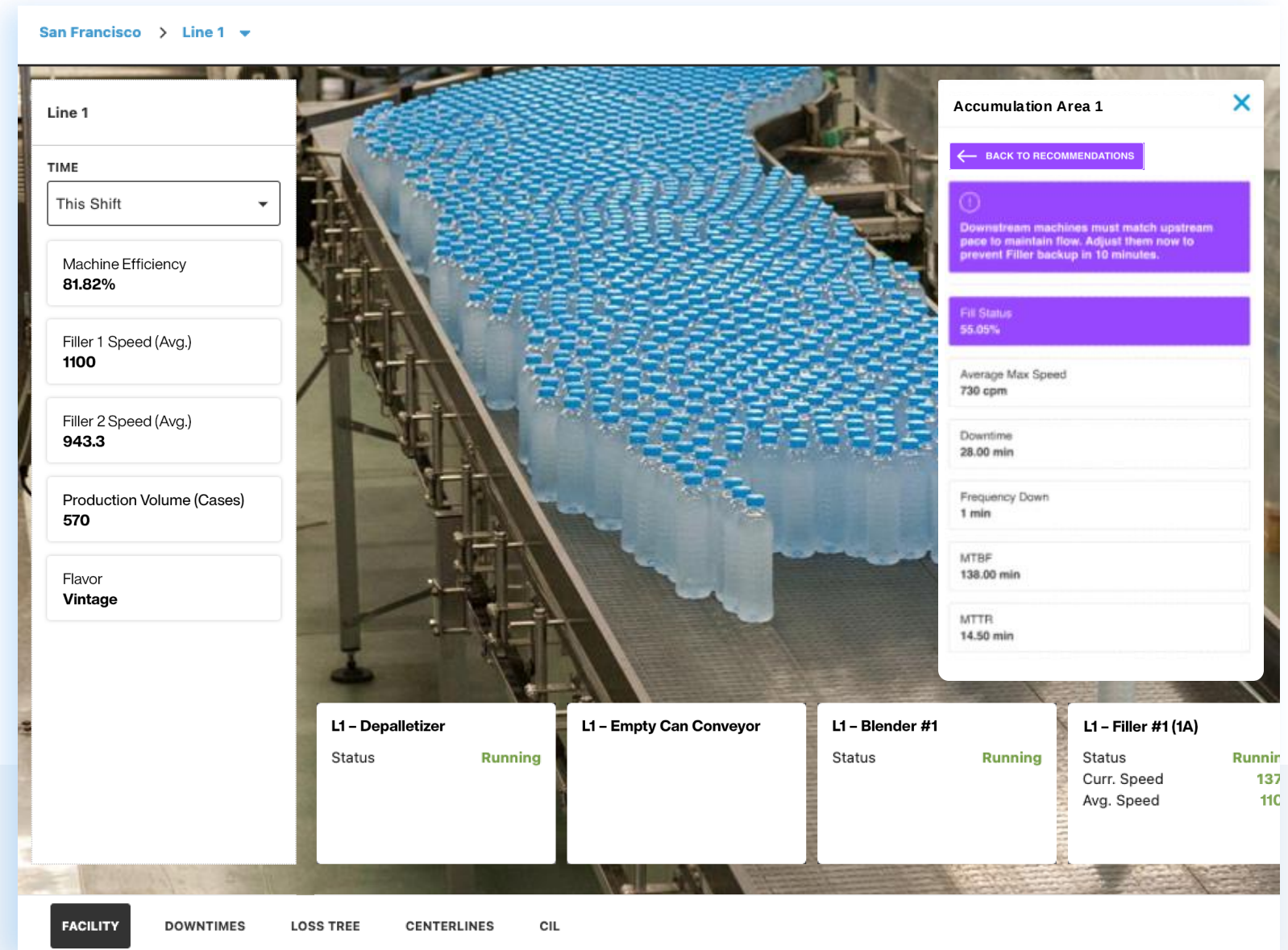
FACILITY DOWNTIMES LOSS TREE CENTERLINES CIL

Next: Click on [GO TO EQUIPMENT](#) at Accumulation Area 1

Highlight Accumulation Area 1 for Monitoring

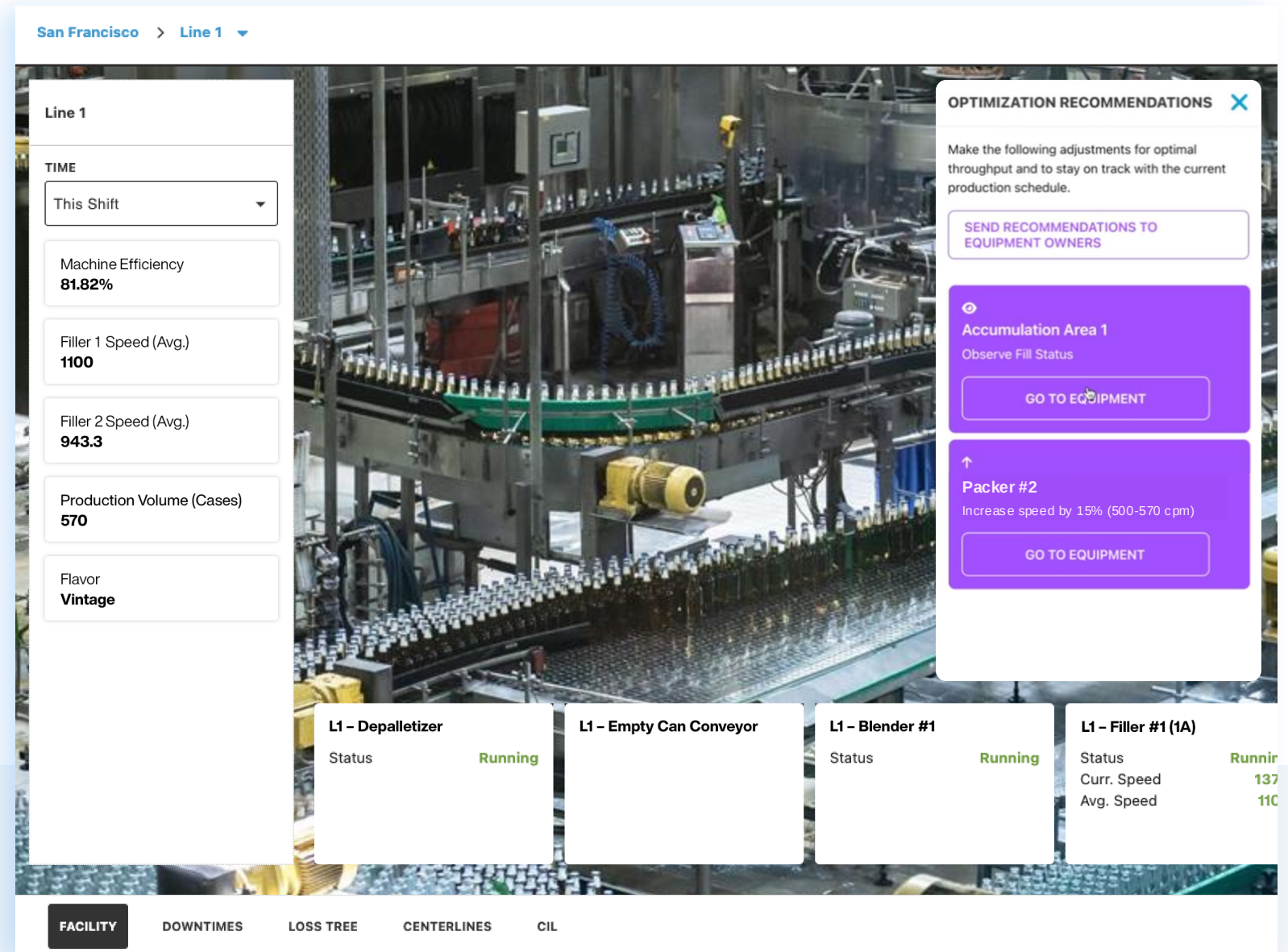
- Accumulation Area 1, downstream of the Filler, is impacted by increased production at the Filler
- Fill Status is increasing from 55% to 62%, since Packer machine, downstream from Accumulation Area 1, is still at the same speed
- If accumulation continues, the Filler could become blocked and have to slow down

Next: Click on [Back to Recommendations](#)



Line View (Once Again)

- Sight Machine surfaces “Optimization Recommendations” panel with remaining suggestions
 - Observe Fill Status at Accumulation Area 1
 - Increase speed by 15% at Packer



San Francisco > Line 1

Line 1

TIME
This Shift

Machine Efficiency
81.82%

Filler 1 Speed (Avg.)
1100

Filler 2 Speed (Avg.)
943.3

Production Volume (Cases)
570

Flavor
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OPTIMIZATION RECOMMENDATIONS

Make the following adjustments for optimal throughput and to stay on track with the current production schedule.

[SEND RECOMMENDATIONS TO EQUIPMENT OWNERS](#)

Accumulation Area 1
Observe Fill Status
[GO TO EQUIPMENT](#)

Packer #2
Increase speed by 15% (500-570 cpm)
[GO TO EQUIPMENT](#)

L1 - Depalletizer
Status **Running**

L1 - Empty Can Conveyor

L1 - Blender #1
Status **Running**

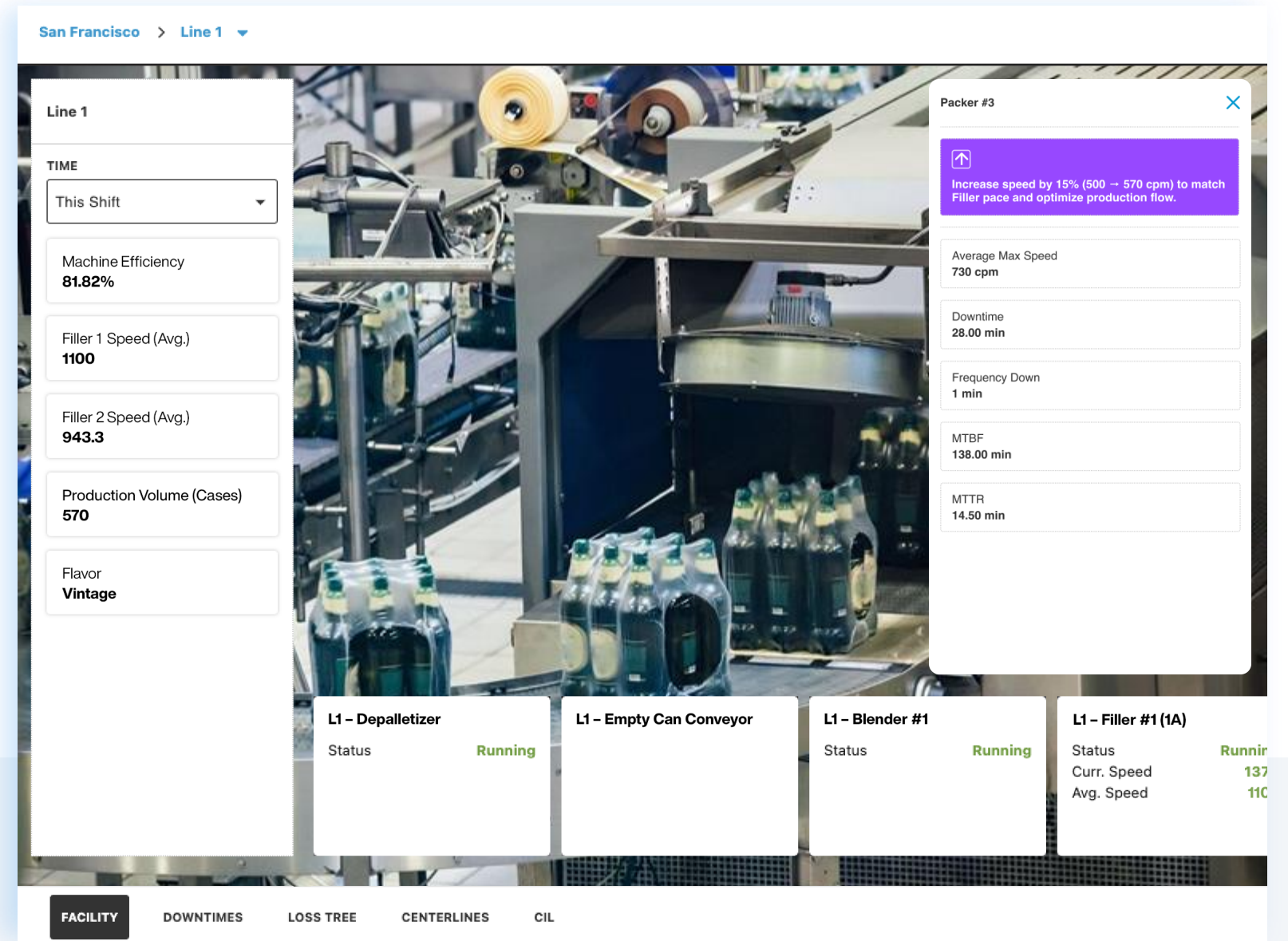
L1 - Filler #1 (1A)
Status **Running**
Curr. Speed **137**
Avg. Speed **110**

FACILITY DOWNTIMES LOSS TREE CENTERLINES CIL

Next: Click on [GO TO EQUIPMENT](#) at Packer #2

Highlight Recommended Speed at Packer

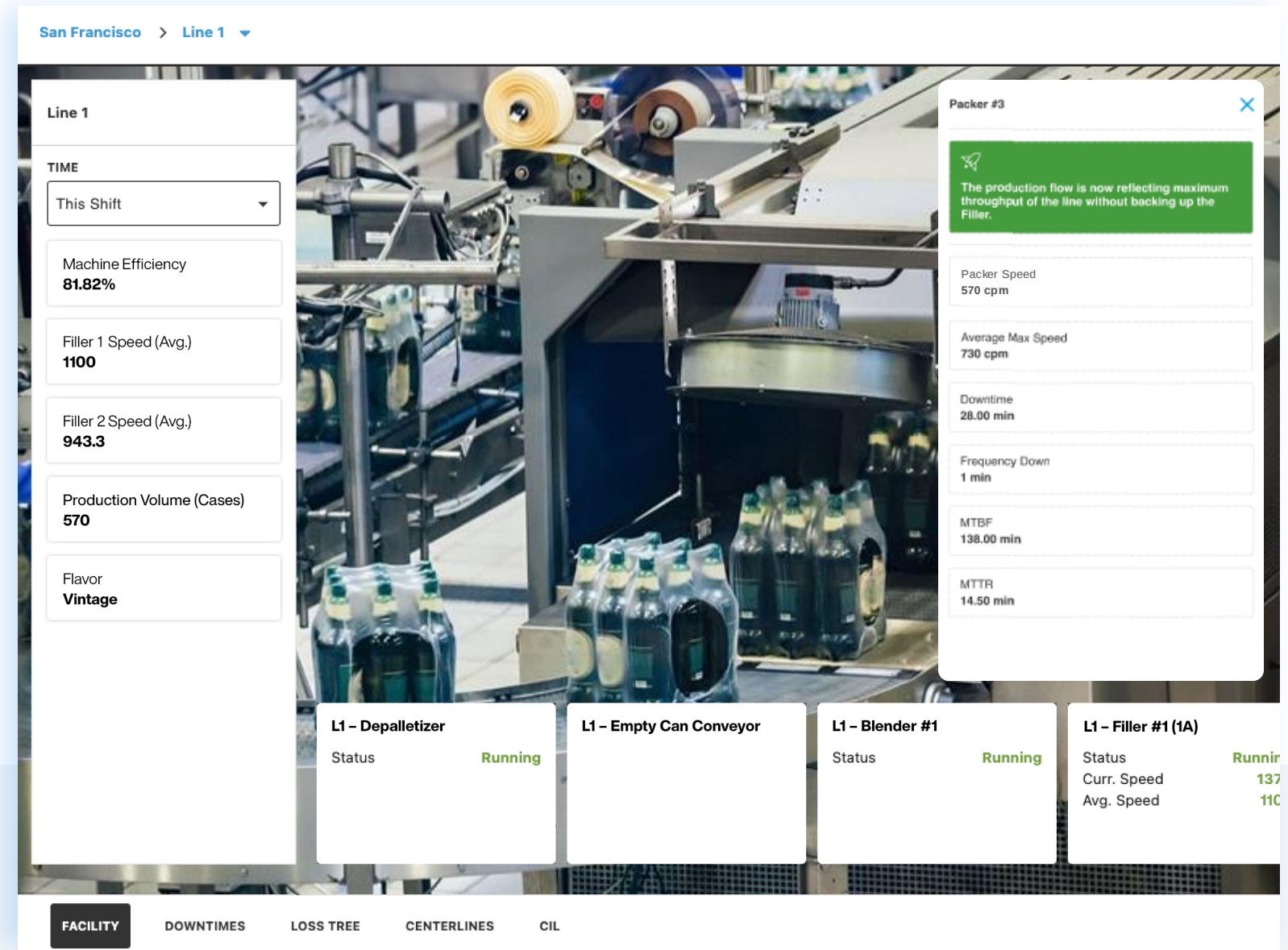
- The Packer needs to keep up with the Filler, which is producing bottles at a faster pace than before
- The Packer's sub-optimal speed is highlighted, with a recommendation:
 - Increase Packer Speed to 570 cpm to match Filler pace and optimize production flow



Surface Packer Speed Increase Based on Operator Action

- The operator has increased the speed of the Packer to the Sight Machine-recommended value
- Surface the Packer Speed, now at 570 cpm
- Highlight the impact of this increased speed
 - Production flow is now reflecting maximum throughput on the line without backing up the Filler
- Recommendation followed; Packer turns from purple to green

Next: Click on [Back to Recommendations](#)



Line Running at Maximum Throughput

- USLE and Machine Efficiency for Filler and Packer are higher than before
- Line now running at maximum throughput!
- All machines in green on 3D visual

