

A3 PROJECT: BIB LINE OPTIMIZATION

Tristen Flores (Valvoline Global Operations)

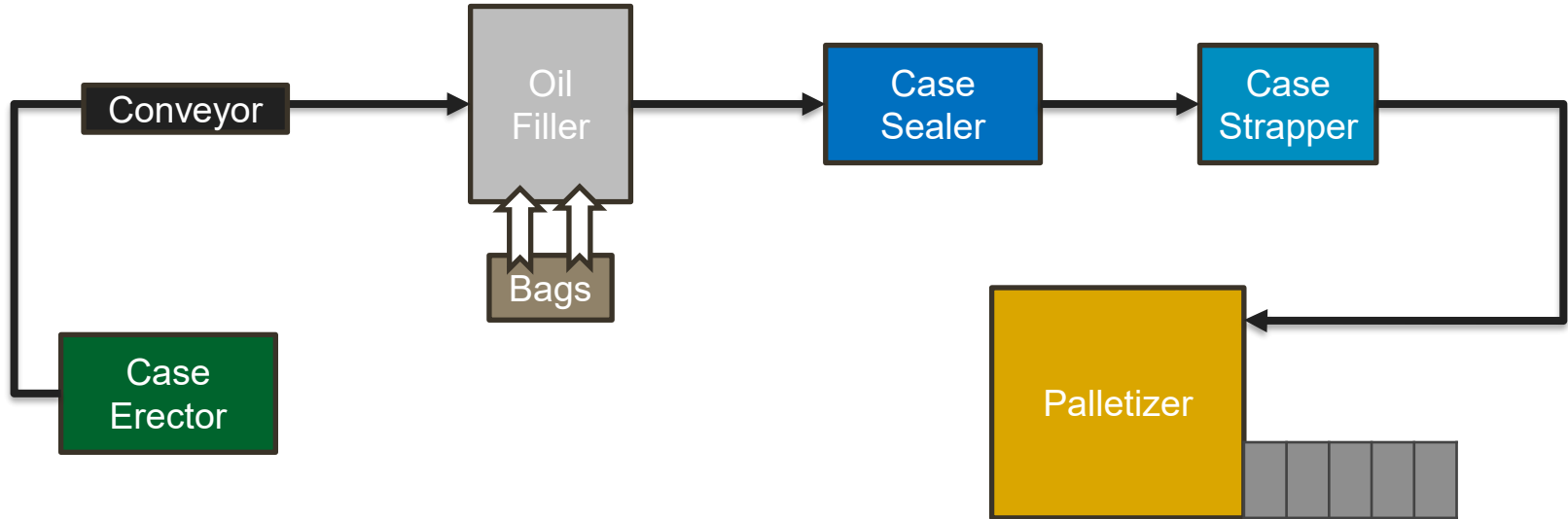


VALVOLINE GLOBAL OPERATIONS

- Worldwide leader in automotive and industrial lubricants
- Offered their first comprehensive internship program in the summer of 2025
- Website: <https://www.valvolineglobal.com/en/>



ASSEMBLY LINE SKETCH



CONTEXT



PROBLEM STATEMENT

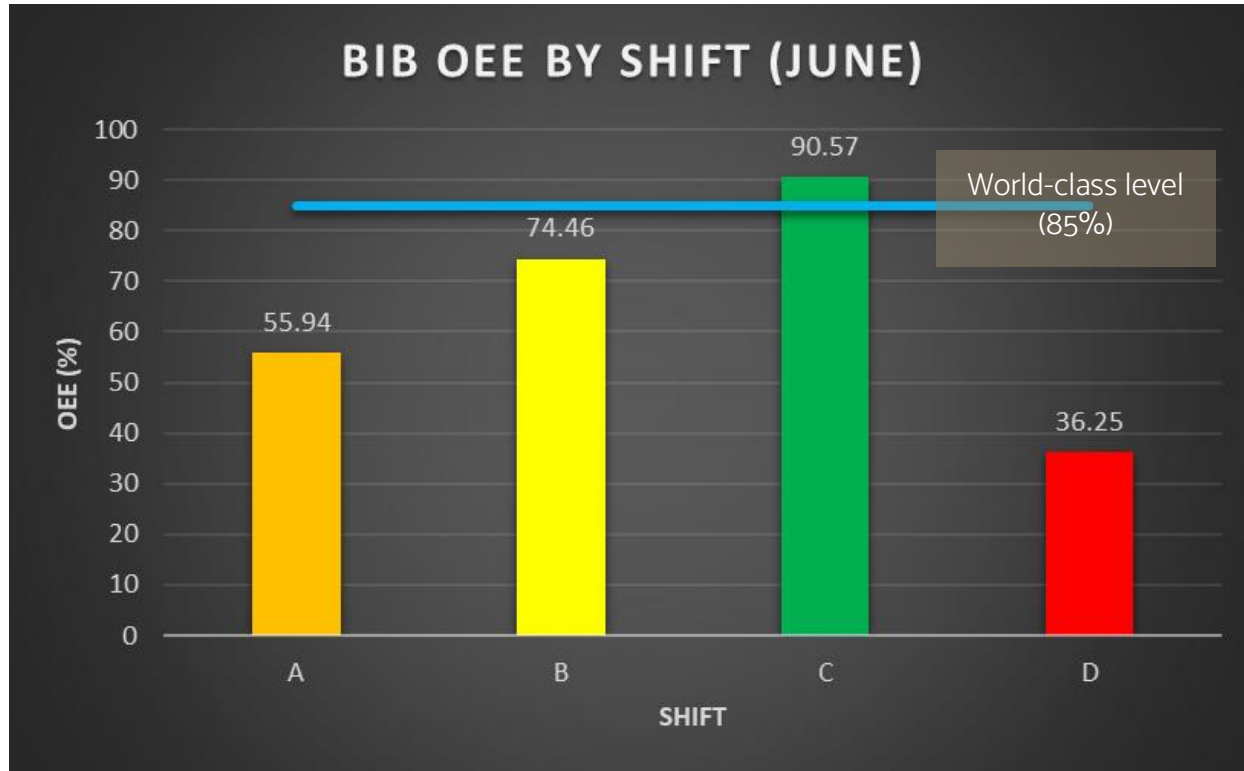
The BIB (Bag-in-Box) assembly line is experiencing low performance levels and a considerable amount of unplanned downtime



PROJECT GOAL

Implement a new strategy that will increase the Overall Equipment Efficiency (OEE) to increase company sales

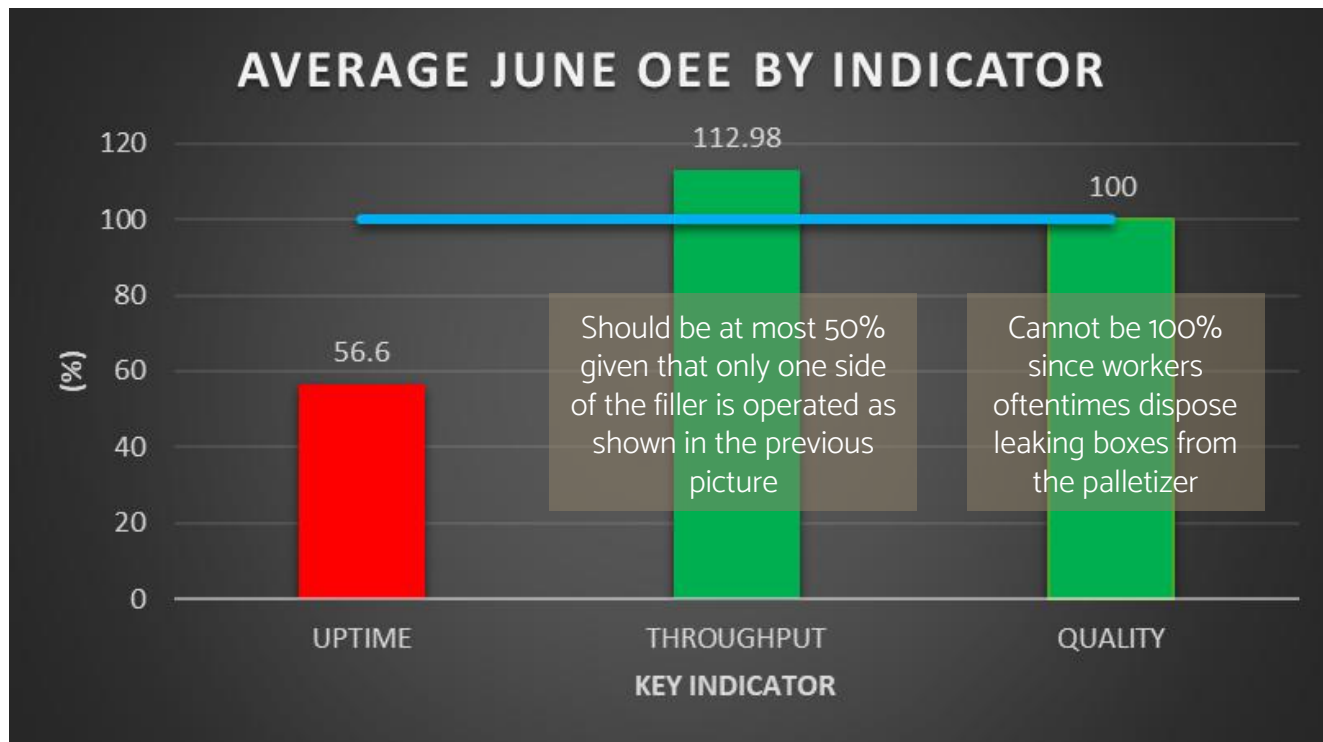
CURRENT AVERAGE OEE



OEE Average = 63.94%

Average OEE is skewed by shifts B and C

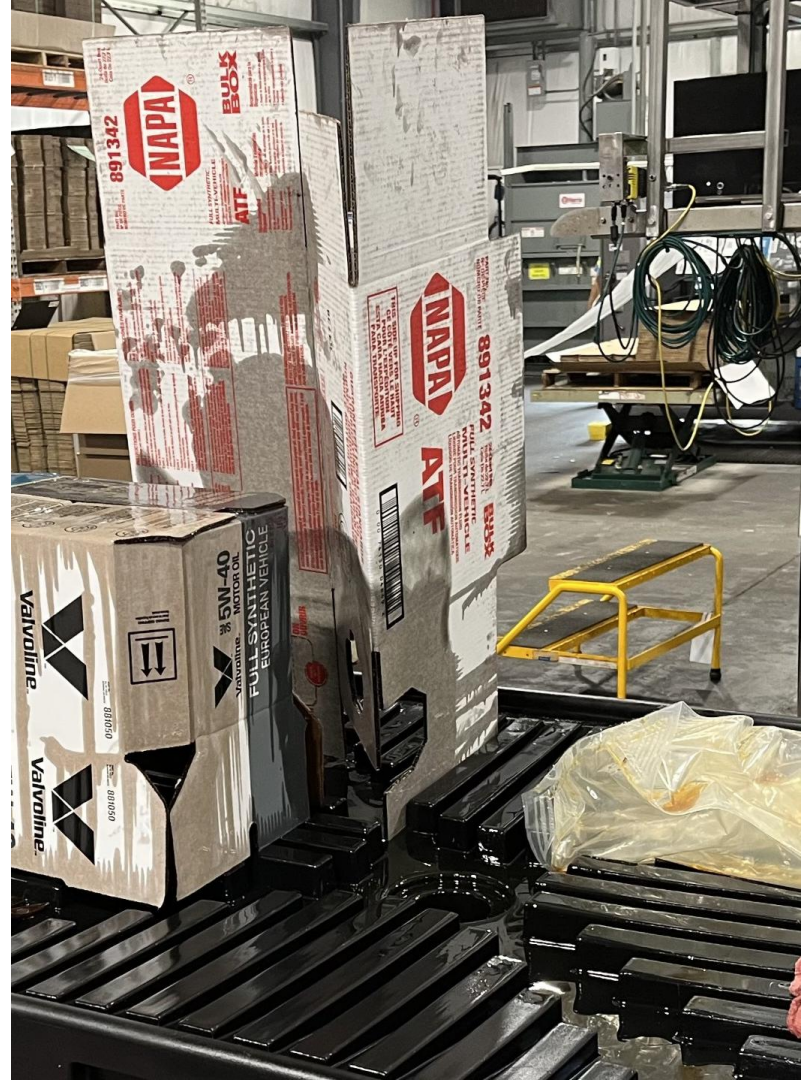
AVERAGE OEE BY INDICATOR



Deer Park needs to ensure its operators are correctly inputting
data information on machine monitors

MY ROLE

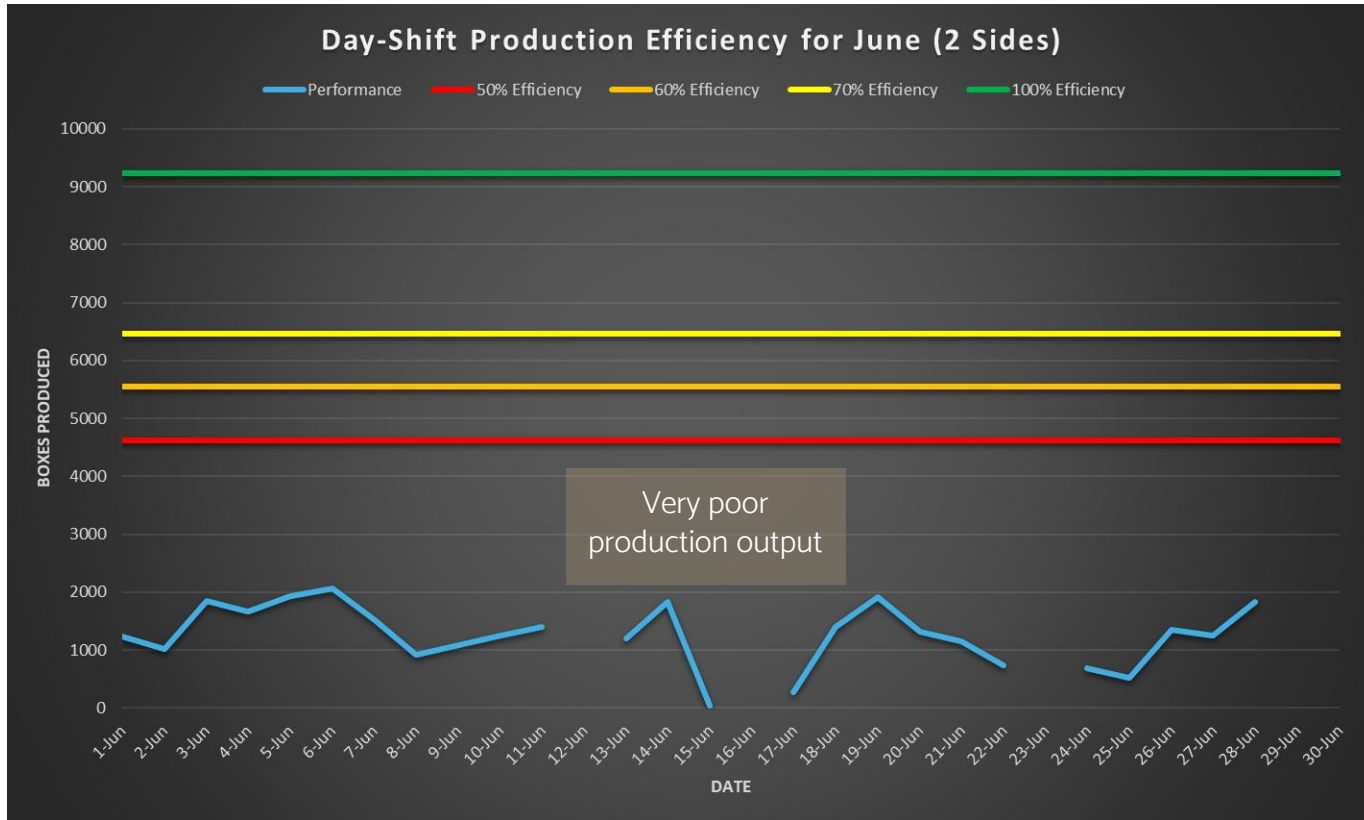
- Gather more accurate data
- Track production output, unplanned downtime, machine failures, and noteworthy details.
- Analyze data to conduct **root-cause analysis** and report to the Deer Park engineers.





**THE
FOLLOWING
ARE MY
FINDINGS**

PRODUCTION OUTPUT



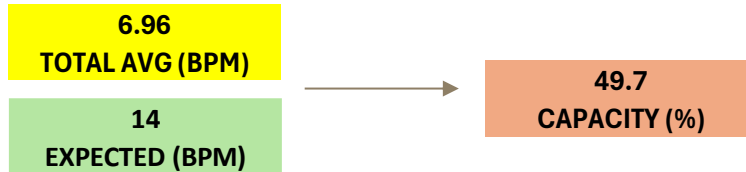
$$\% \text{ Efficiency} = \frac{\text{actual bags produced}}{\text{theoretical max}} * 100\%$$

Theoretical max is the assumption that the filler is running at full capacity (14 bags/minute) and running for 11 hours

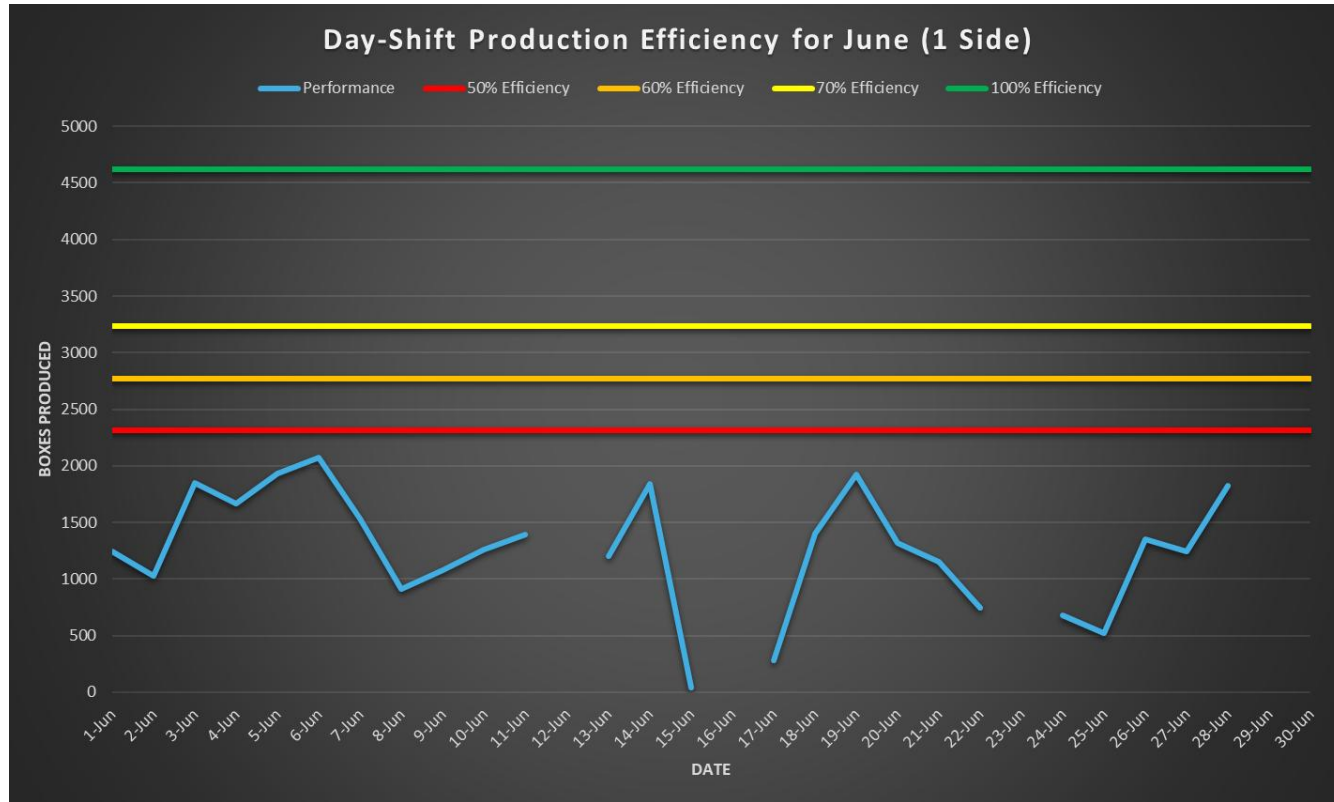
PERFORMANCE

- Counted number of produced bags within a minute
- Tests were spaced out over time
- 70 Samples
- Consistent with the operation of only one side

BAGS PER MINUTE (BPM)				
PART #893933	PART #881056	PART #884940	PART #904063	PART #881050
7	6.8	7	7	7
6.9	6.9	6.9	7	6.9
7	6.9	6.9	7	7
7	7	7	7	7
7	6	6.9	7	7
7	7	7	7	6
7	6.9	6.9	6.9	6.8
7	7.1	7	7.1	6.9
7.3	6.9	7	7.1	7
7	7.1	7	7	6.9
7	6.9	6.9	7.1	7
	7.1	6.8	7.1	6.9
	7		7	7.2
	7			7
	7			7
	7			7
				7
				7

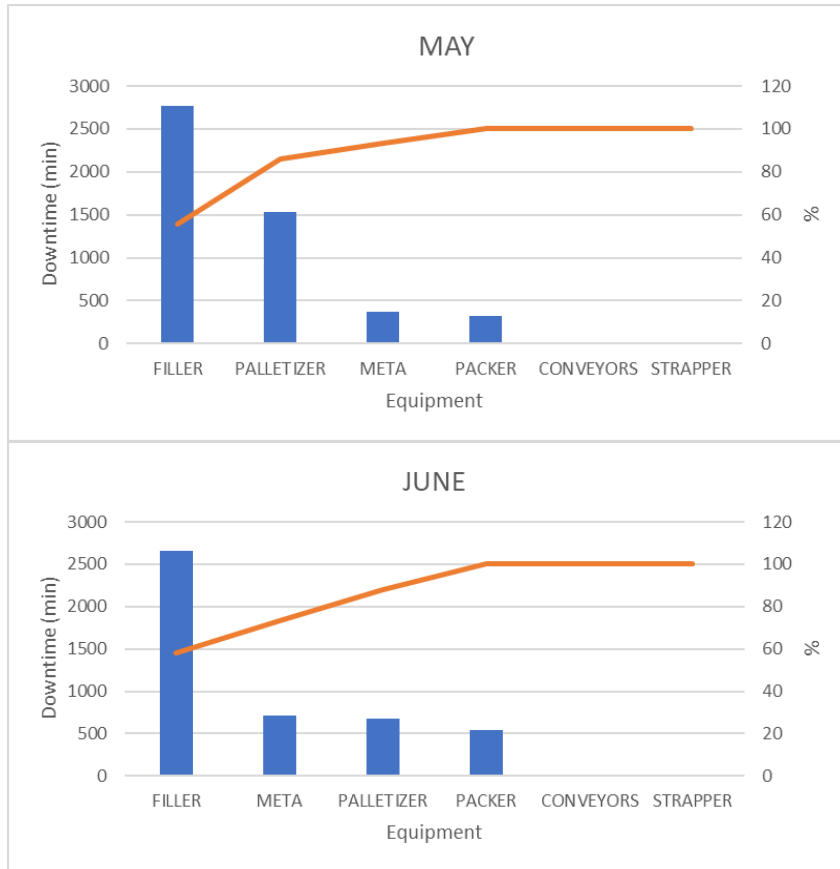


PRODUCTION OUTPUT



Even if we construct a similar graph analyzing efficiency **for only one side**, production still lies below 50%. The **core issue** is the **availability**.

DOWNTIME TRENDS



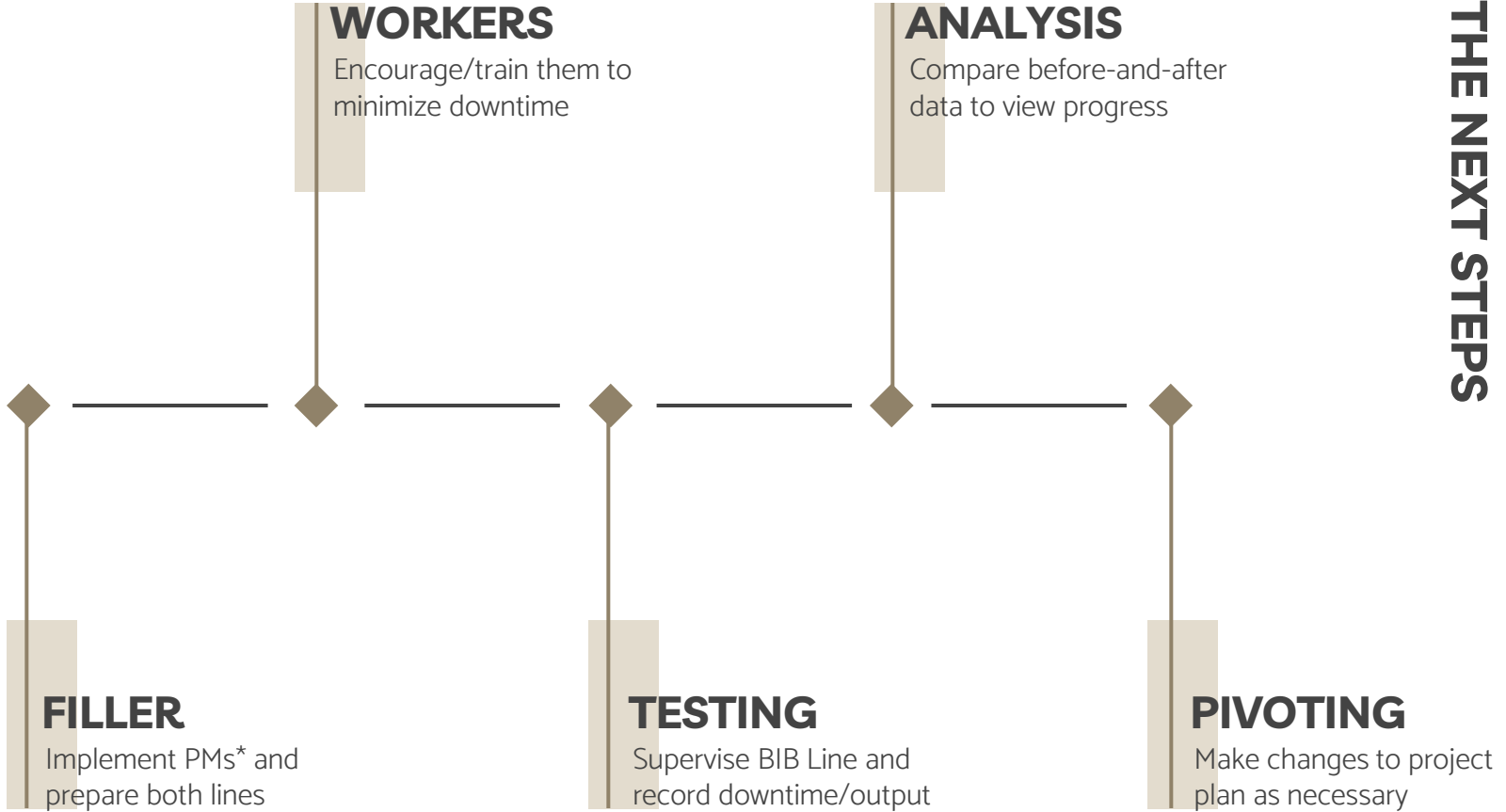
- The filler causes about 60% of total monthly downtime
- Focusing solely on filler would help significantly
- **But why is there so much downtime at the filler?**



DOWNTIME ROOT CAUSE

- The filler experiences constant machine failures throughout shift
- However, it's a matter of how those issues are attacked
- **Line operators tend to view downtime as a resting opportunity** (take their time to troubleshoot failures)

THE NEXT STEPS



*Preventative Maintenance

THANKS

I am proud to say that I have left the groundwork for the Deer Park Engineers to initiate their action plan in the next coming months

