

Increasing customer satisfaction and improving Sales operational efficiency in a car dealership

A Lean project by :

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Agenda

- INTRODUCTION OF THE COMPANY
- METRICS
- VALUE STREAM MAPPING
- ROOT CAUSE ANALYSIS
- SOLUTION
- UPDATED VSM
- DESCRIPTIVE ANALYSIS
- HYPOTHESIS TESTING
- QUALITY CONTROL





Introduction of the company

- **Name : Mercedes Autos**
- **Location : Boston, MA**
- **Founded : 1926**
- **Size of the company : 2500 employees**

Solution:-

To purchase showroom space and Increase employees

Goal:-

Increase customer satisfaction and Operational efficiency

Problem :-

Low customer satisfaction

Our Solution:-

Process Improvement



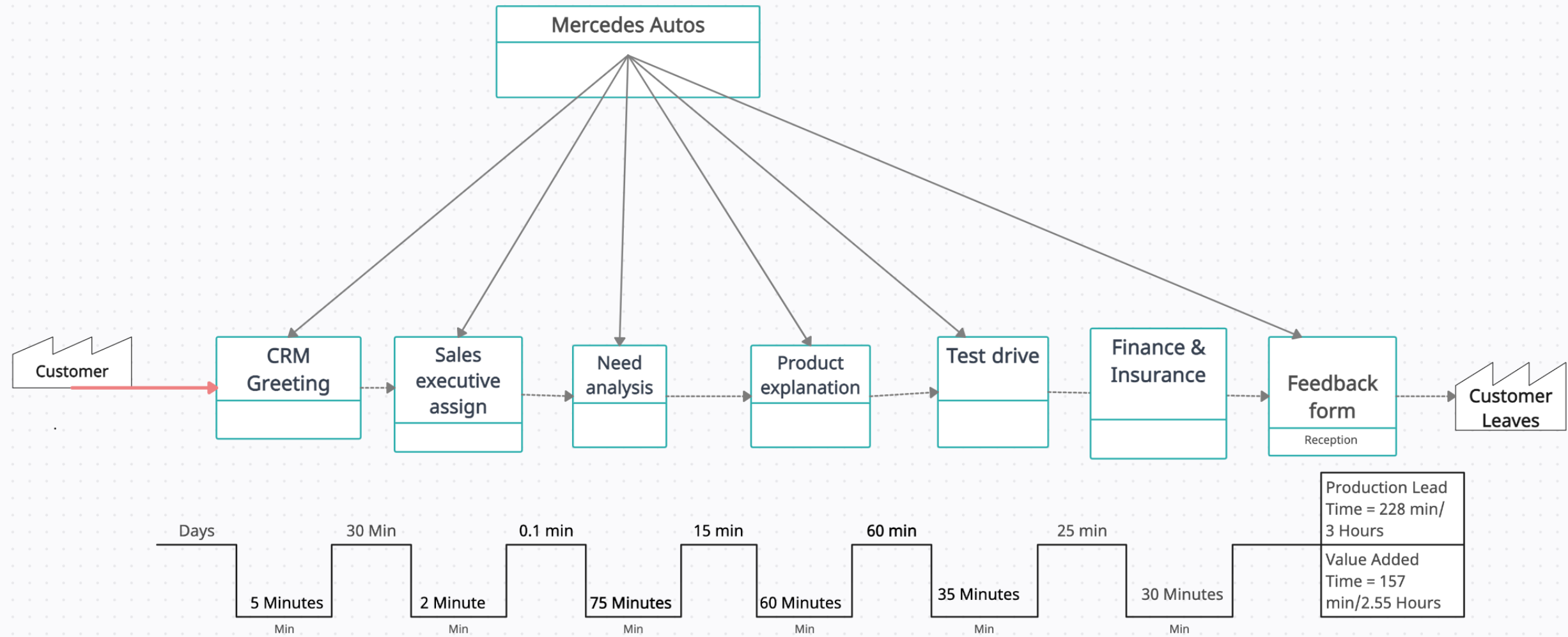
Metrics

- Average time for the Customer do the sales process : 5 Hours
- Target time < 3 hours

Customer In Time	Customer Out Time	Duration of sale process in (hours)
10:15 AM	3:45 PM	5
8:45 AM	2:45 PM	5
11:00 AM	5:30 PM	5
8:45 AM	2:45 PM	5.66
10:30 AM	4:45 PM	5.35
12:30 PM	7:00 PM	5.77
9:15 AM	4:15 PM	5
8:45 AM	2:45 PM	5.66
10:30 AM	4:45 PM	5.35
12:30 PM	7:00 PM	5.77
12:45 PM	7:15 PM	4.77
9:45 AM	3:30 PM	4.88
11:15 AM	6:00 PM	5
10:30 AM	4:15 PM	5.75
10:30 AM	4:15 PM	5.75
8:45 AM	2:45 PM	4
11:00 AM	5:30 PM	5

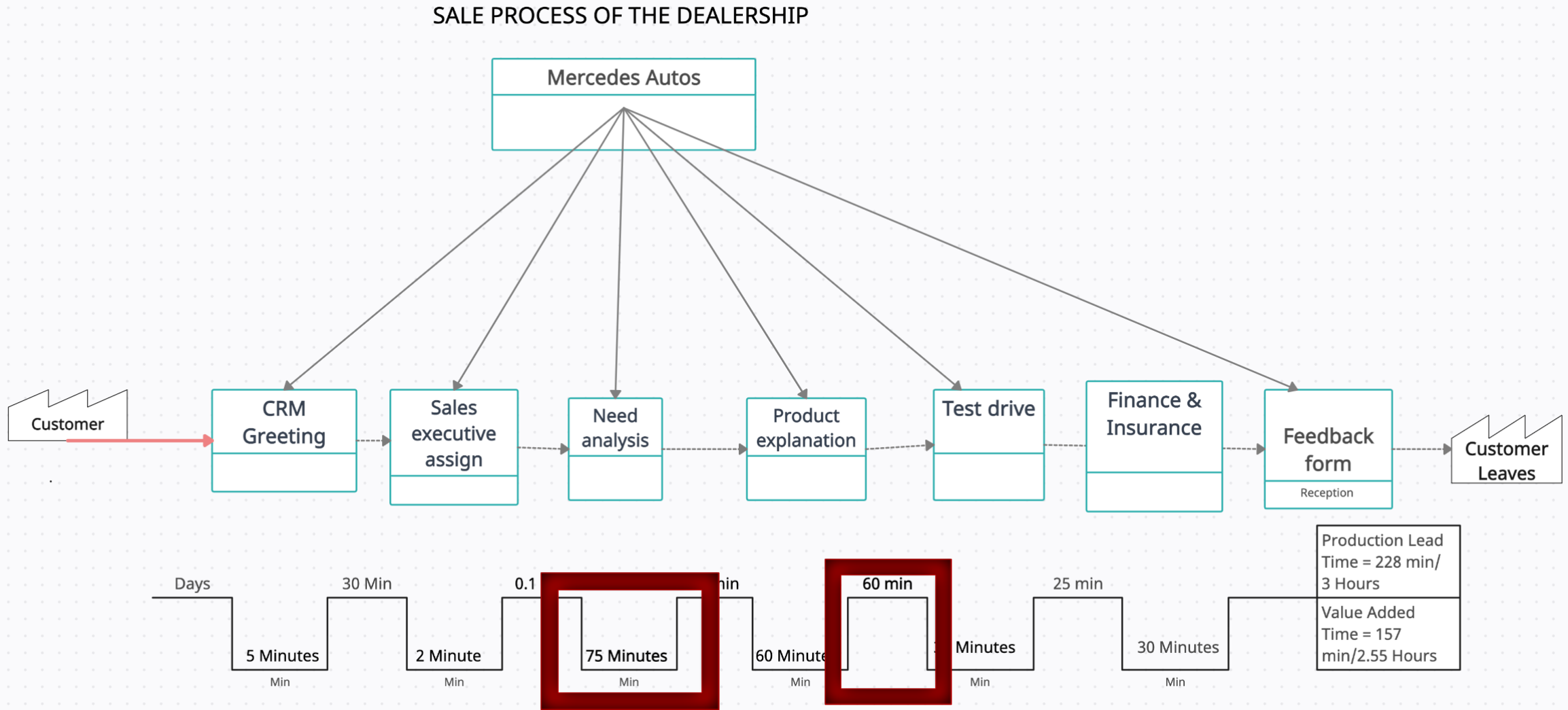
SALES PROCESS OF THE DEALERSHIP

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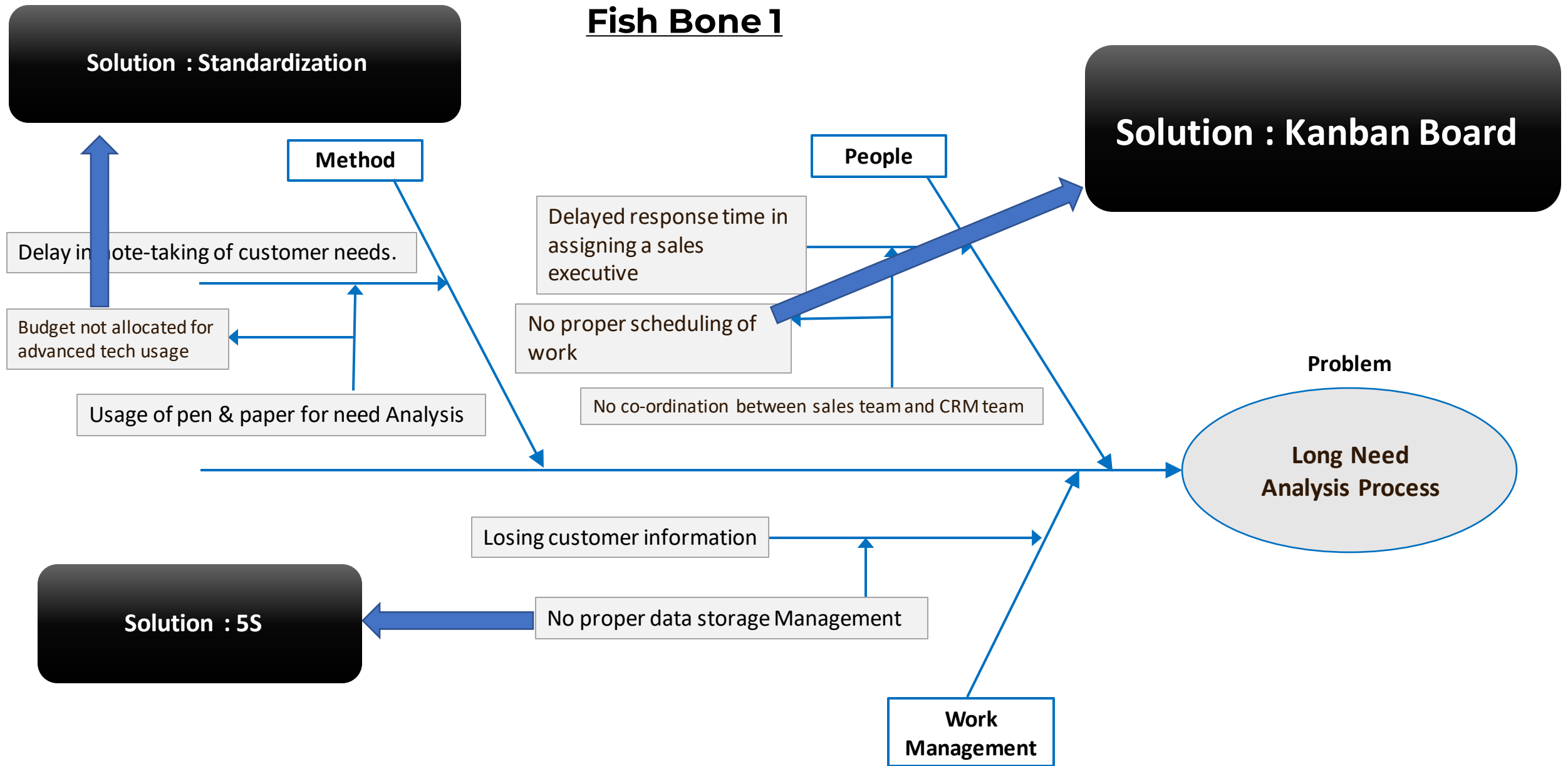
• Current VSM

SALES PROCESS OF THE DEALERSHIP

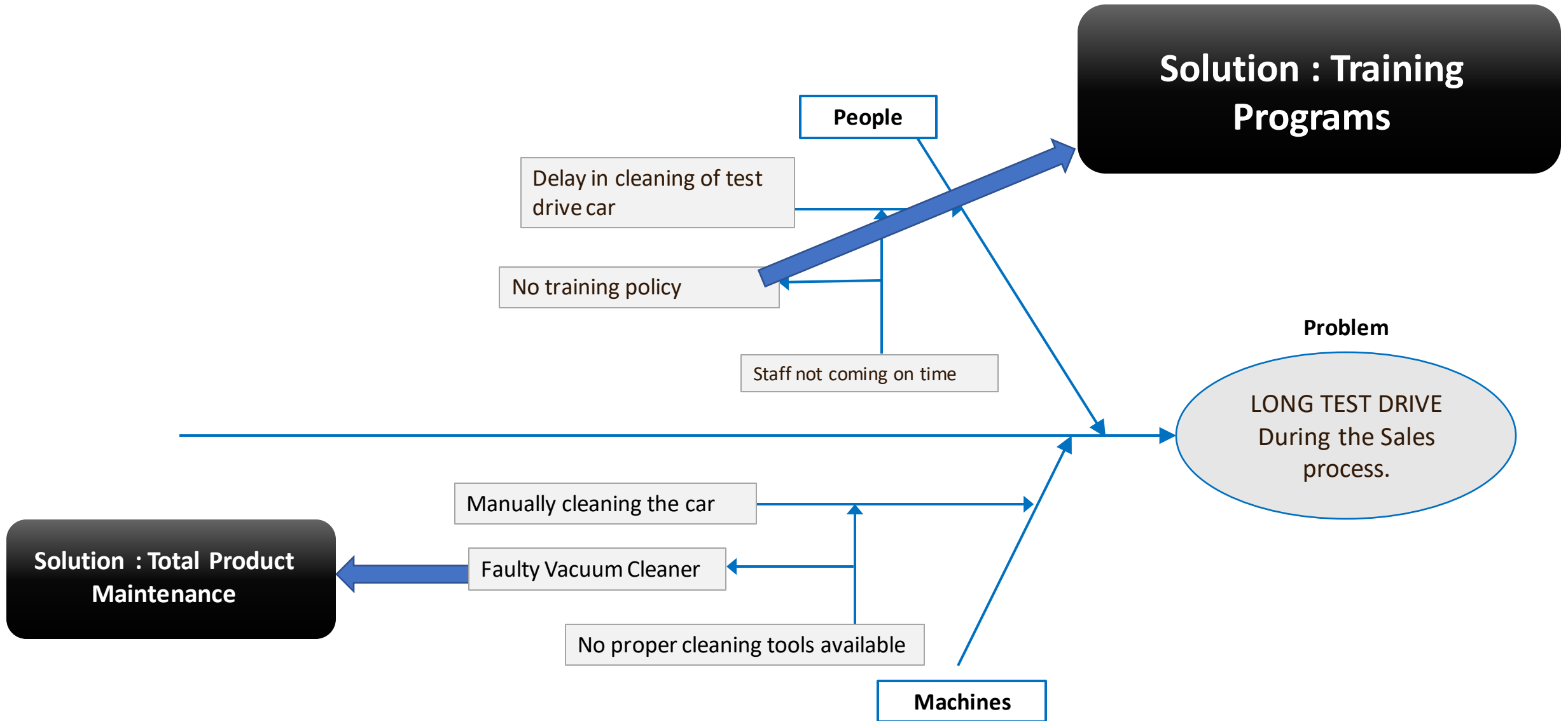


- Bottle Necks in current VSM

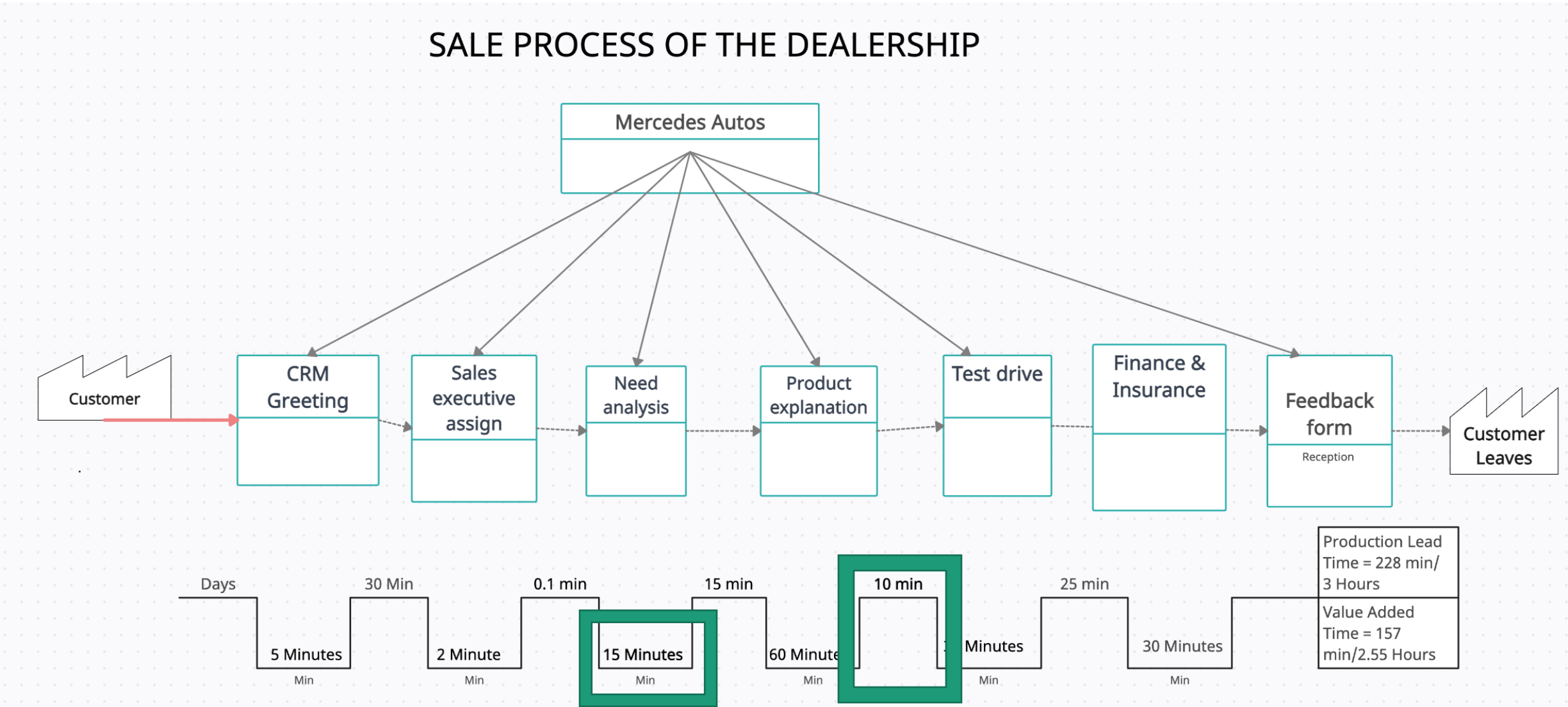
Fish Bone 1



Fish Bone 2



SALES PROCESS OF THE DEALERSHIP



• **UPDATED VSM**



Customer ID	Check-in Time	Check-out Time	Duration (hours)
1	8:00 AM	10:15 AM	2.25
2	8:30 AM	10:45 AM	2.25
3	9:00 AM	11:00 AM	2
4	9:30 AM	11:30 AM	2
5	10:00 AM	11:45 AM	1.75
6	10:30 AM	12:15 PM	1.75
7	11:00 AM	12:30 PM	1.5
8	11:30 AM	1:00 PM	1.5
9	12:00 PM	1:30 PM	1.5
10	12:30 PM	2:00 PM	1.5

- Average time to attend customer achieved : 2.5 hours

Descriptive Analysis

<i>Before</i>	
Mean	3.620588235
Standard Error	0.089116854
Median	3.405
Mode	5
Standard Deviation	0.900036109
Sample Variance	0.810064997
Kurtosis	-0.421394759
Skewness	0.287924298
Range	3.77
Minimum	2
Maximum	5.77
Sum	369.3
Count	102

<i>After</i>	
Mean	1.112745098
Standard Error	0.061589657
Median	1.5
Mode	1.5
Standard Deviation	0.622025049
Sample Variance	0.386915162
Kurtosis	-1.307255737
Skewness	-0.101815794
Range	2
Minimum	0.25
Maximum	2.25
Sum	113.5
Count	102

After the process Improvement

Sale Duration of each customer ≤ 1.73 Hours

Before the Improvement

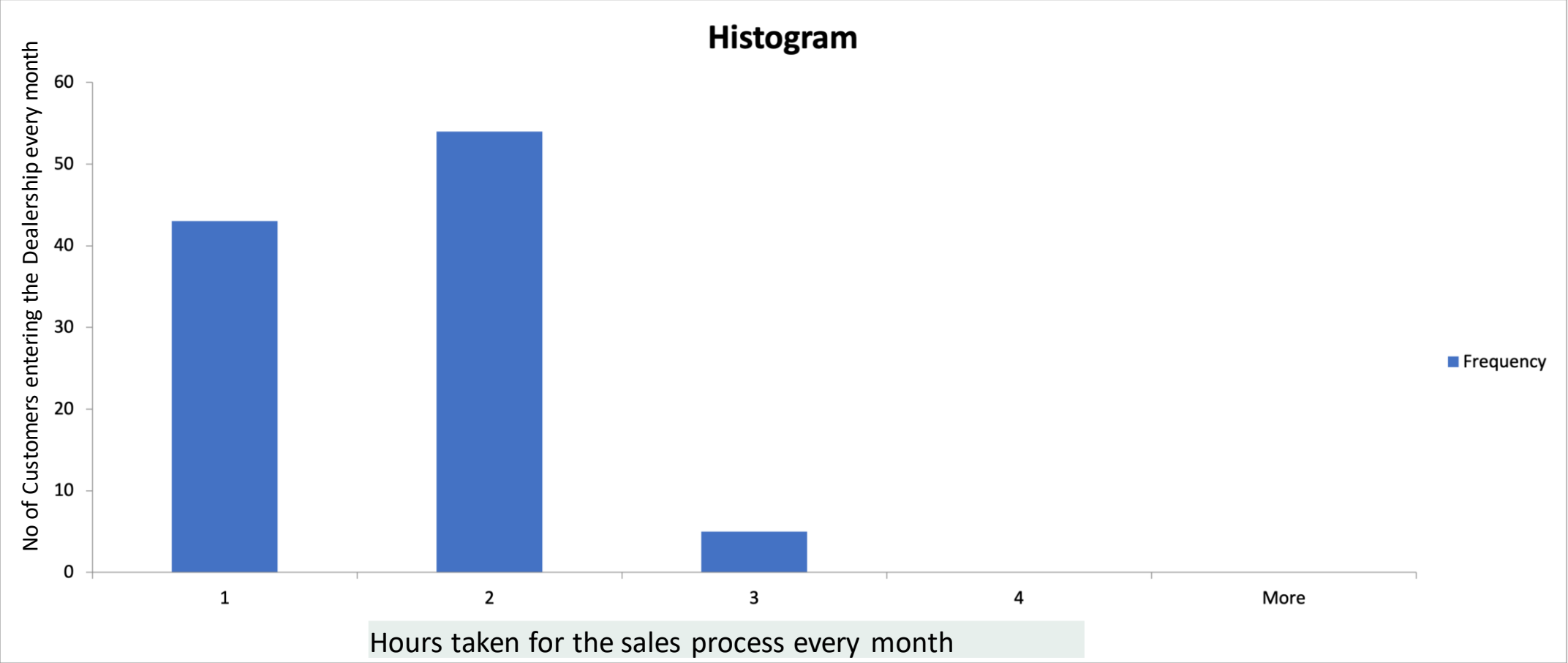
Histogram



Y- Axis = Num of Customers entering the Dealership every Month

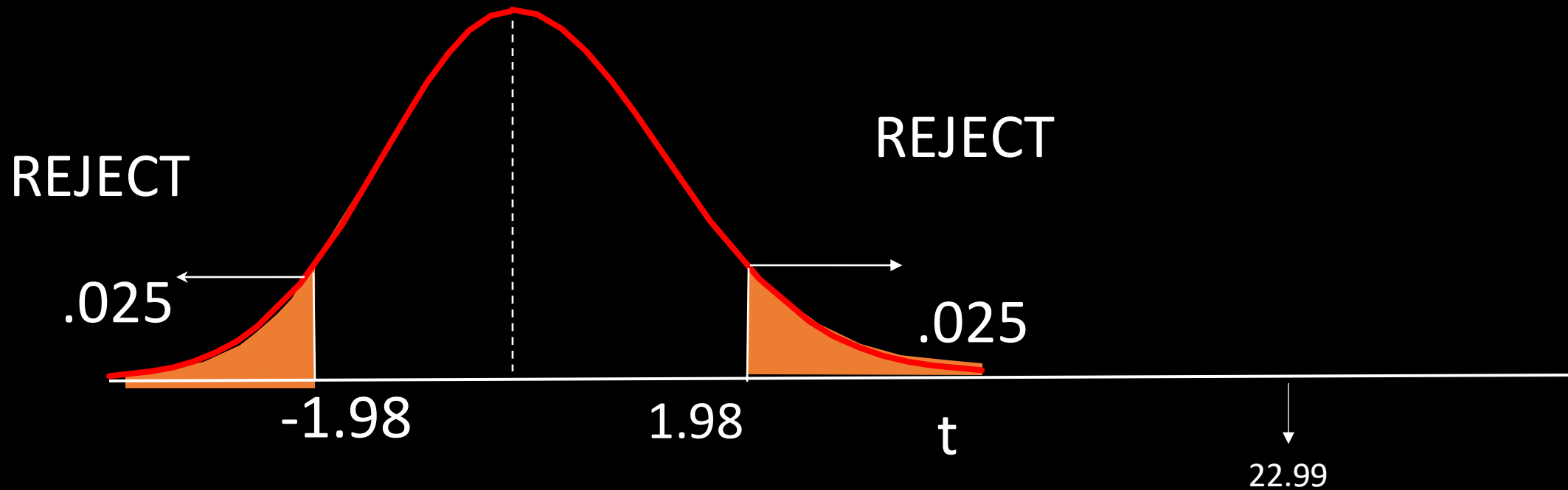
X- axis = Hours taken for the Sales Process every Month

After the Improvement



Y- Axis = Num of Customers entering the Dealership every Month

X- axis = Hours taken for the Sales Process every Month



Hypothesis of what : Before and After timings of. Customer duration in the dealership

Reason of testing : To check the Improvement of Operational efficiency

H0 – There is no significant difference in Customer Satisfaction

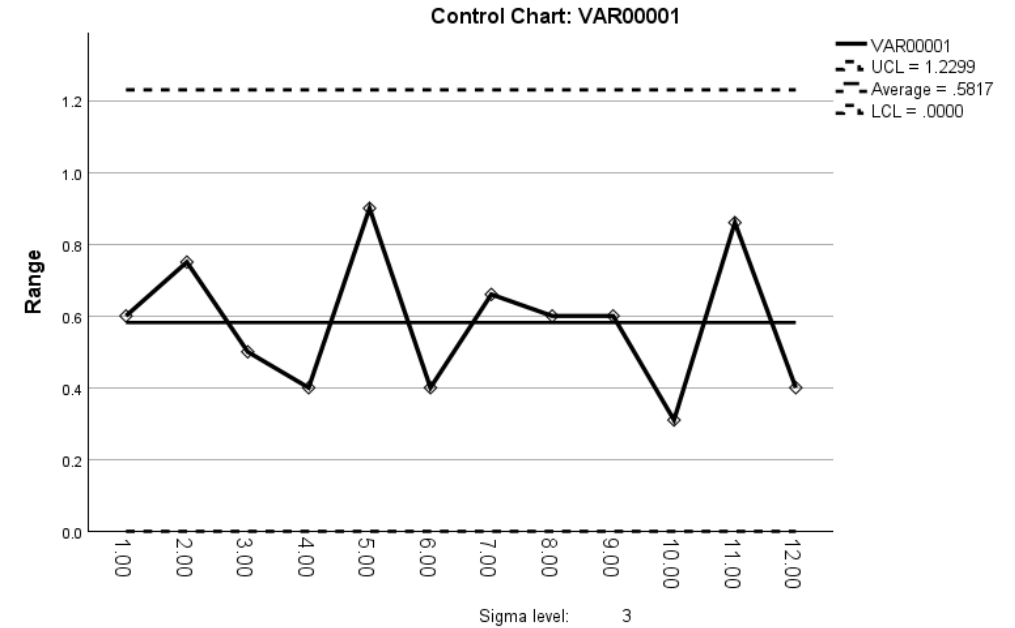
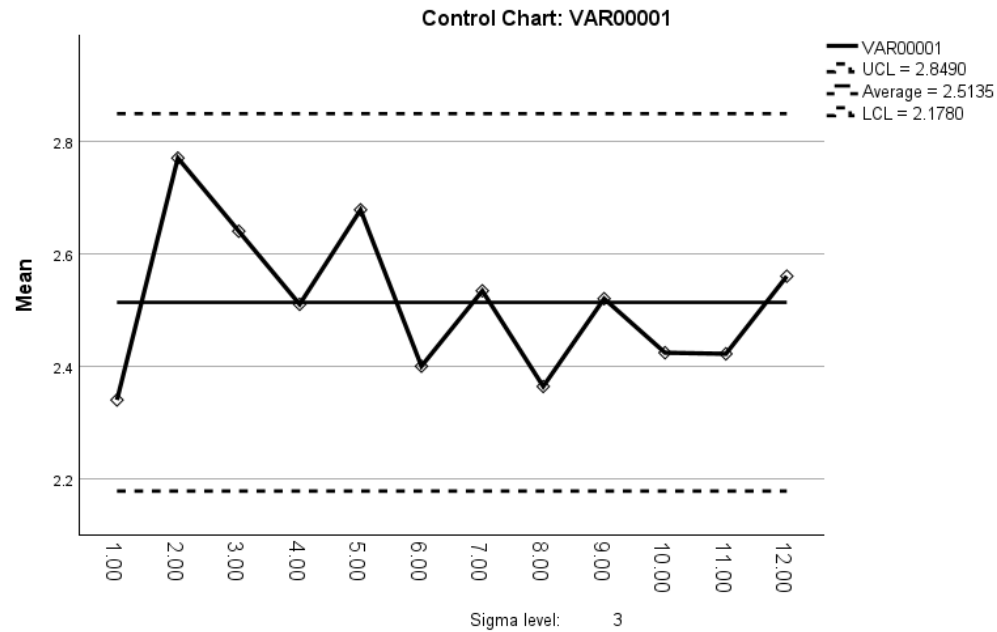
H1 - There is Difference in IN & OUT time thereby increasing the Customer Satisfaction

T critical --> 22.99

T stat --> 1.98

Conclusion : As there is significant change in Customer Satisfaction at 95% Confidence, Hence we are rejecting the Null Hypothesis(H0)

Validation Approach



- R chart the variations are Upper control level and Lower Control level.
- There are no Outliers, we can say that the system is in control.

THANK YOU!

“Efficiency Demands Performance” – Ferry Porsche