

Abstract

This paper proposes case study to improve process control of a service provider in food and beverage industry in this regard the study includes the analyses of the current system depicting the existing problems within the company. The study then analysis the cause of existing problems and designs a customized improvement methodology while establishing a sustainable process control. Creating an effective and sustainable process control methodology is also considered to improve the unexplained drop in sales. Strategies based on Six Sigma approach, DMAIC process control strategy have been followed to solve the demand supply related sales problems of the business [1].

Introduction

Existing Six sigma is a powerful business strategy that employs a disciplined approach to tackle process variability using the application of statistical and non-statistical tools and techniques in a rigorous manner.

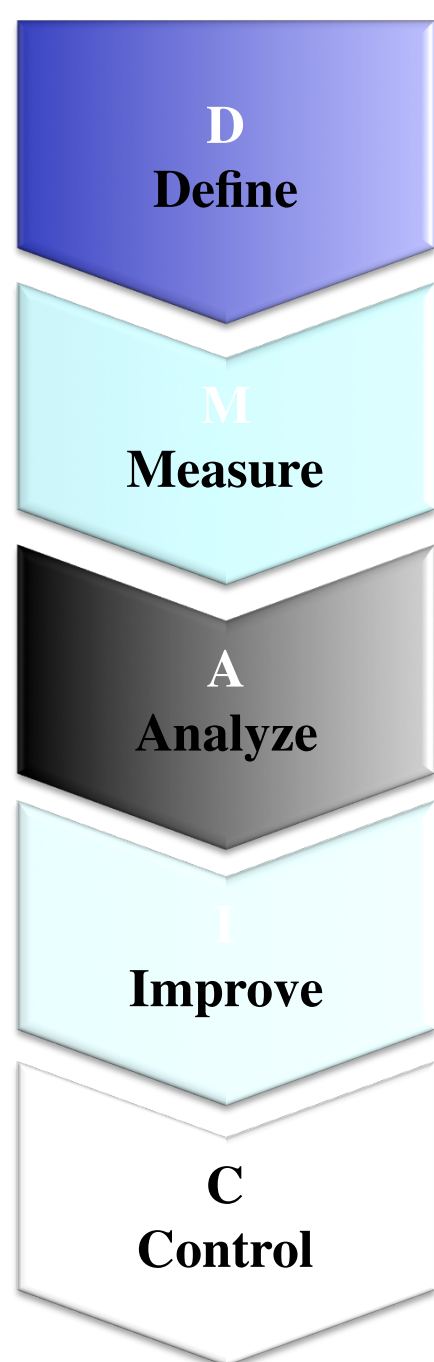
Six Sigma is a project-oriented, and statistically based tool for

- Reducing variability.
- Removing defects.
- Eliminating waste from products, processes, and transactions.

In recent times, six sigma has become a major tool in business world for quality and business improvement.

Statistical methods and statisticians have a fundamentally critical role to play in this process[2].

Problem Solving Method



Define
Define the improvement project even when we do not know the cause of the problem. How can the decision maker return to the previous sales level? Ultimately customer needs determined sales.

Measure
In this phase you determine current performance levels of your processes called base lines[3]. Here this refers to the processes that make sales.

Analyze
In this phase we sort through data to identify potential opportunities for improvement of the process[4]. How can the decision maker increase sales? This phase helps to find a potential solution to customer needs or expectation to optimize sales.

Improve
We identify the most effective way to improve our processes' performance based on the analysis of the data of previous phase[5]. Which specific steps should lead to increase sales?

Control
Gathering data for phase two to measure and sustain the solution. How can that maintain this increase in sales?

Define

Most of complains were about working hours, which aided in developing a Cause and Effect diagram to gain further analysis into the cause and effect relationship of the problem being investigated.

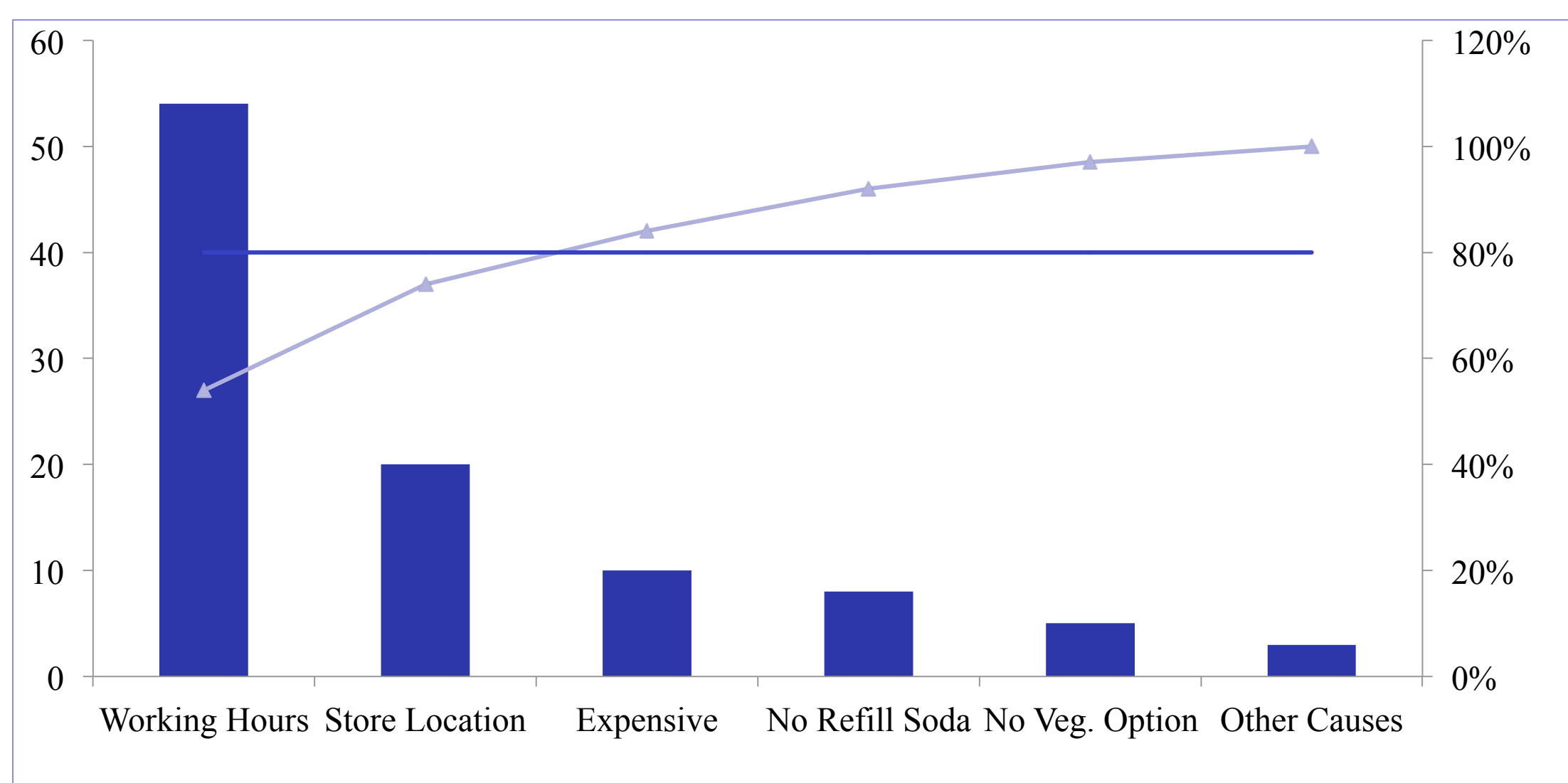


Figure 1. Pareto chart for the customer complaints

Measure

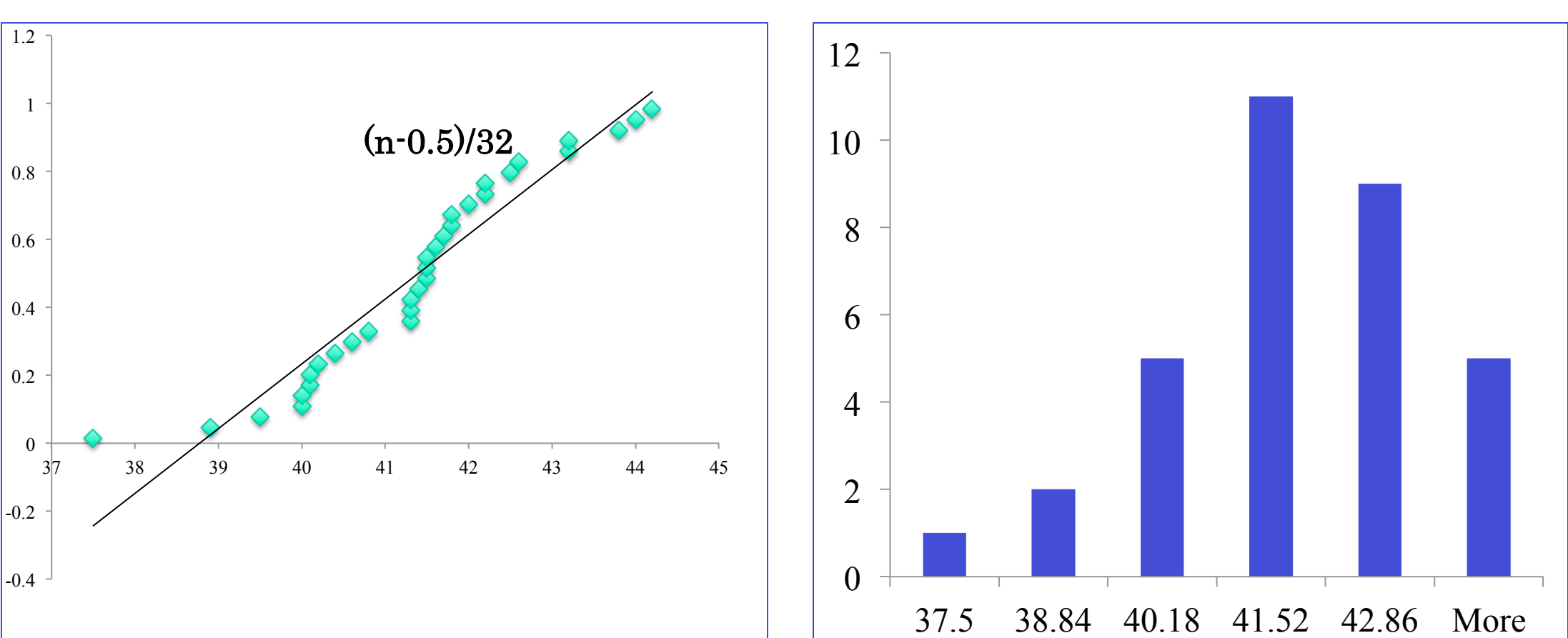


Figure 2. The data set is not distributed normally according to the probability plot and the histogram

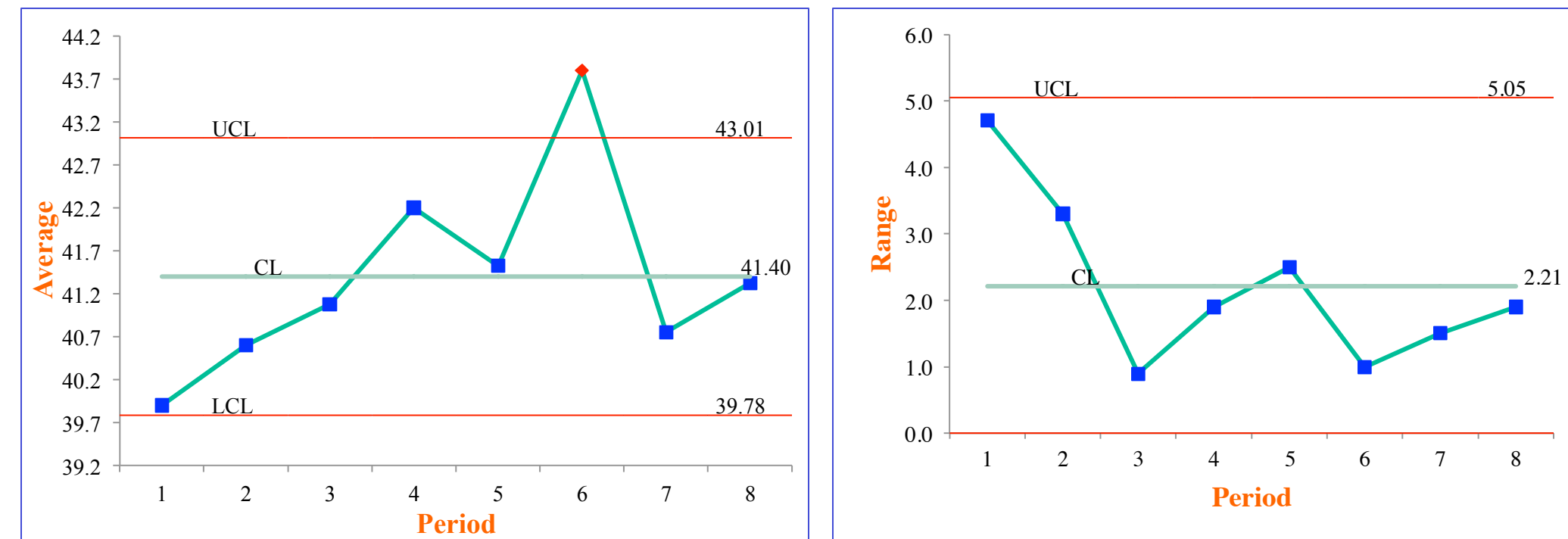


Figure 3. Individual and moving range chart

Analyze

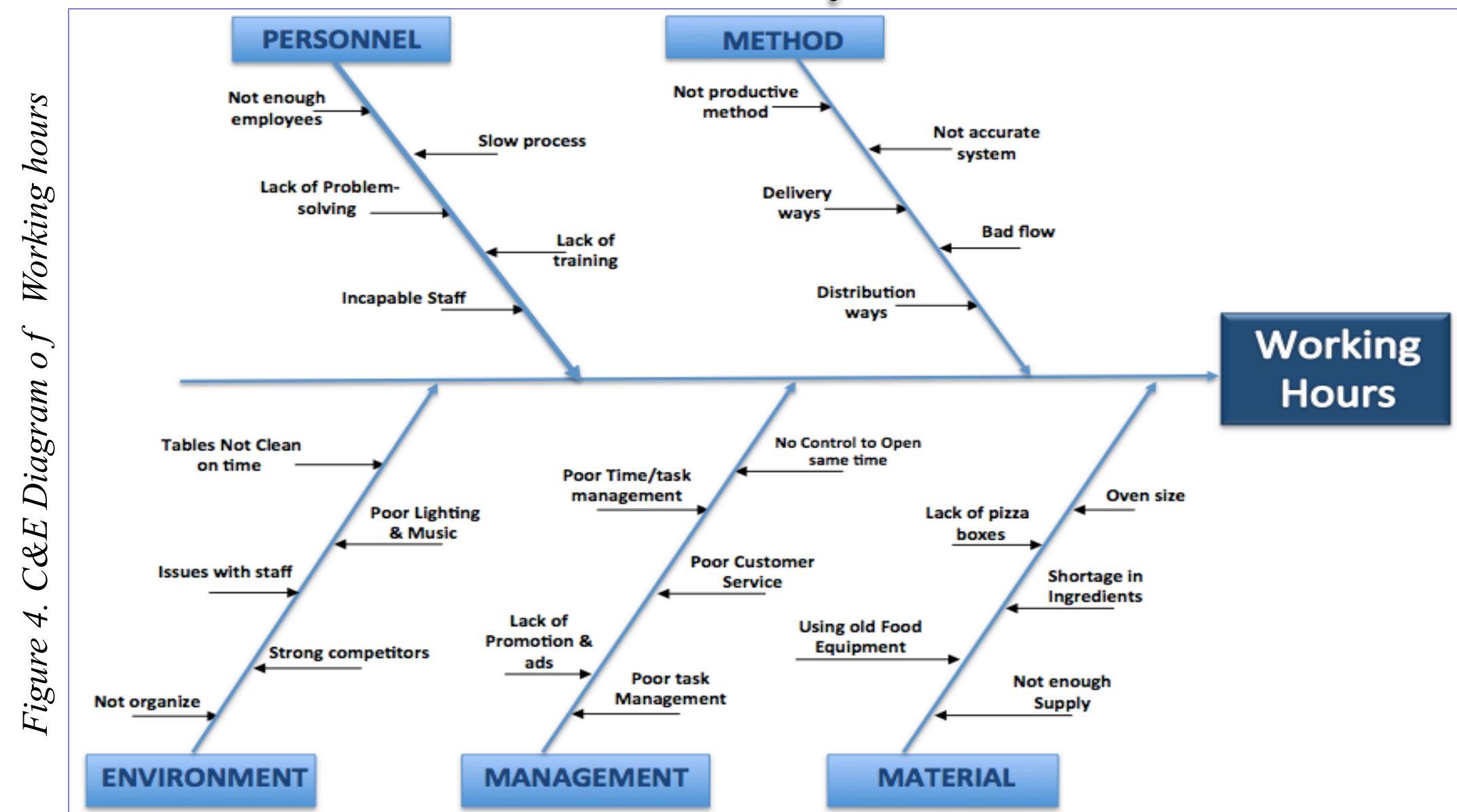


Figure 4. C&E Diagram of Working hours

Improve

There are some steps followed as a solution for the sales decline

- Replace the old oven to new one.
- Find new Food supplier.
- Introduce online and phone order.
- Reorganize the layout of the restaurant.
- Promotion and advertisement

Control

In this phase a working hours analysis was done using the three quality control methods as seen down, a histogram chart, a probability plot chart, and a control chart. According to restaurant policy about average working hours is 4 minutes , it clearly seen that problem solved and it is in control.

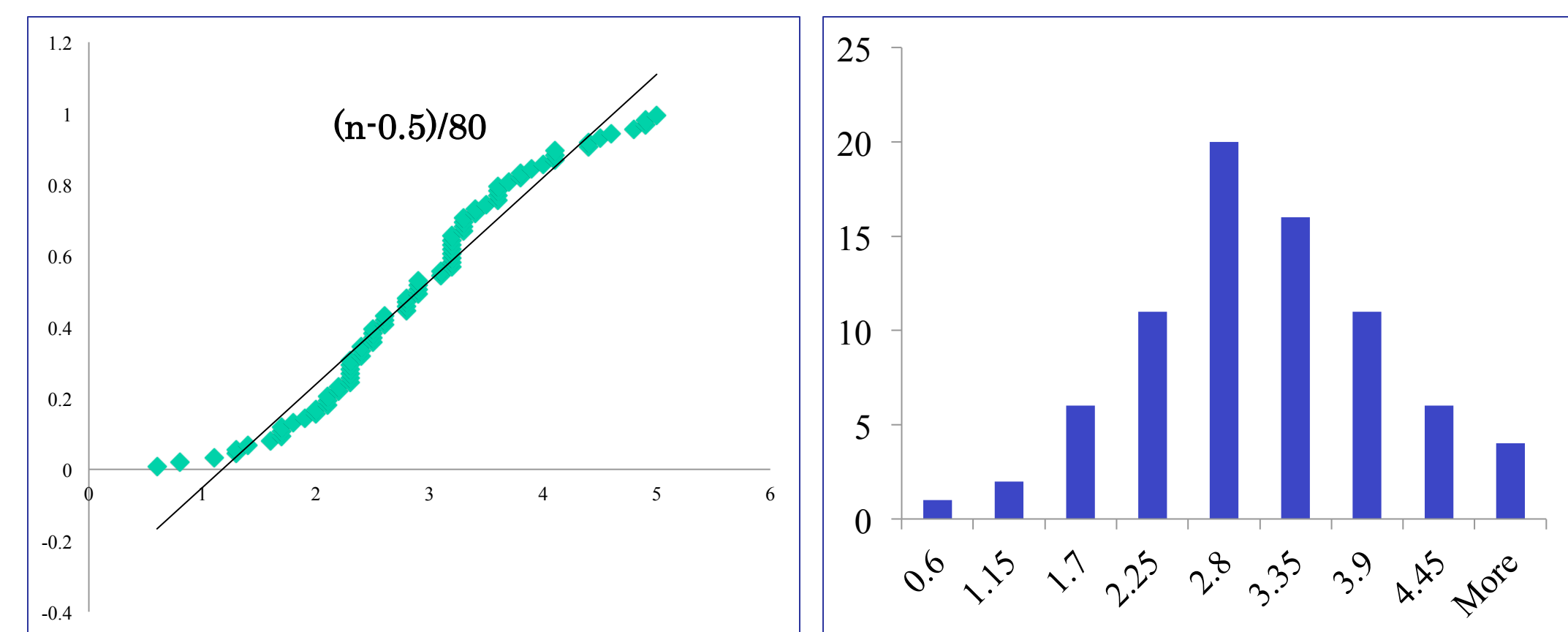


Figure 5. The data set is distributed normally according to the probability plot and the histogram

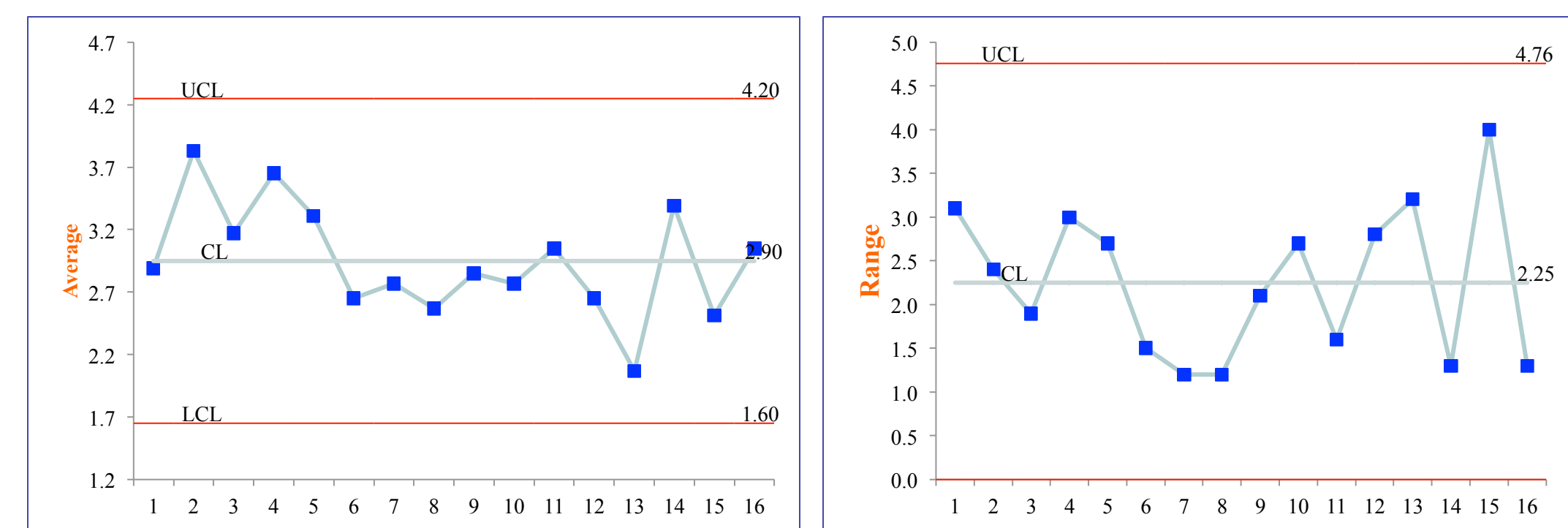


Figure 6. X and R bar chart

Research and Discussion

- Existing Lean tools and Six Sigma approaches cannot be utilized in strategic planning process.
- For subjective, non-quantitative nature of the Information and the sensitive nature of possible solutions DMAIC and DEAPS Strategies are not appropriate for this strategic initiative.
- There is no standard approach for DEAPS, many Corporate executives will attempt to deploy DEAPS on their own.
- DEAPS (Define-Evaluate-Analyze-Prioritize-Sustain) strategy based on Lean tools and a revised Six Sigma approach[7].
- In DEAPAS a new Process or an existing process can be designed or redesigned.

Conclusion

- Case study for detecting and improving Johnny's pizza sale is carried out.
- We analyze its current situation, identify existing problems, detect the cause of the existing problems and able to come up with an improved and sustainable solution for Johnny.
- The study shows how working hours causing outliers in phase 1 control chart. With fixing working hours, this also shows how process improved in phase 2 control chart.
- This is a perfect example of successful implementation of Six Sigma DMAIC methodology.