

Case 1: Improving Service Times at Dave's Burgers

Dave's Burgers is a fast-food restaurant franchise in Georgia, South Carolina, and North Carolina. Recently Dave's Burgers has followed the lead of larger franchise restaurants like Burger King, McDonald's, and Wendy's and constructed drive-through windows at all its locations. However, instead of making Dave's Burgers more competitive, the drive-through windows have been a source of continual problems, and it has lost market share to its larger competitors in almost all locations. To identify and correct the problems top management has selected three of its restaurants (one in each state) as test sites and has implemented a TQM program at each of them. A quality team made up of employees, managers, and quality specialists from company headquarters, at the Charlotte, North Carolina, test restaurant using traditional TQM methods like Pareto charts, check sheets, fishbone diagrams, and process flowcharts, have determined that the primary problem is slow, erratic service at the drive-through window. Studies showed that from the time a customer arrived at the window to the time the order is received averages 2.6 minutes. To be competitive management believes service times should not exceed 2.0 minutes and ideally should average no more than 1.5 minutes.

The Charlotte Dave's Burgers franchise implemented a number of production process changes to improve service time at the drive-through window. It provided all employees with more training across all restaurant functions, improved the headset system, improved the equipment layout, developed clearer signs for customers, streamlined the menu, and initiated even-dollar (tax inclusive) pricing to speed the payment process. Most importantly the restaurant installed large, visible electronic timers that showed how long a customer was at the window. This not only allowed the quality team to measure service speed but also provided employees with a constant reminder that a customer was waiting.

These quality improvements were implemented over several months and their effect was immediate. Service speed was obviously reduced and market share at the Charlotte restaurant increased by 5 percent. To maintain quality service, make sure the service time remained fast, and continue to improve service, the quality team decided to use a statistical process control chart on a continuing basis. They collected six service time observations daily over a fifteen-day period, as follows:

Sample	Observations of Service Times (Min)					
	1	2	3	4	5	6
1	1.62	1.54	1.38	1.75	2.50	1.32
2	1.25	1.96	1.55	1.66	1.38	2.01
3	1.85	1.01	0.95	1.79	1.66	1.94
4	3.10	1.18	1.25	1.45	1.09	2.11
5	1.95	0.76	1.34	2.12	1.45	1.03
6	0.88	2.50	1.07	1.50	1.33	1.62
7	1.55	1.41	1.95	1.14	1.86	1.02
8	2.78	1.56	1.87	2.03	0.79	1.14
9	1.31	1.05	0.94	1.53	1.71	1.15
10	1.67	1.85	2.03	1.12	1.50	1.36
11	0.95	1.73	1.12	1.67	2.05	1.42
12	3.21	4.16	1.67	1.75	2.87	3.76
13	1.65	1.78	2.63	1.05	1.21	2.09
14	2.36	3.55	1.92	1.45	3.64	2.30
15	1.07	0.96	1.13	2.05	0.91	1.66

Requirements:

- Use Excel to construct an \bar{x} - chart and an R - chart for this data.
- What conclusions can you draw from the control charts regarding the results of the quality improvement efforts? Have the goals concerning service times been reached? Is the process in control?
- What would your recommendations be with respect to continuing the quality improvement program? What other statistical tools might Dave's Burgers use in its quality management program? Provide some examples.

Write a memo addressed to Dave's Burgers management discussing your analysis and recommendations. Your memo should not exceed 3 pages including any displays (graphs, tables, etc.).

Students are asked (but not required) to work on this assignment in teams (absolutely no more than 3 students per team!). The memo will be evaluated on both the analysis and the presentation and is due on Wednesday, March 15.