Control Charts Guideline

PURPOSE

Similar to a run chart, a **Control Chart** shows your system's performance over time. What makes it different from a run chart is the addition of upper and lower control limits. These calculated control limits are referred to as "the voice of the process" (VOP).

> **Based on the rules of normal distribution, when a process is in control, it will show:**
> - All points within the control limits **(G)**
> - 68% of the measurements within +/- one standard deviation **(F)**
> - A random pattern of collected data points **(E)**

CONTROL CHART COMPONENTS

(A) Title – The title should include what you are measuring, time frame it was measured and location where the measurement was taken.

(B) X-axis – Usually time (e.g., day, week, month), or it could be the observation number. This variable will always be put in time order, meaning what came first, second, third etc.

(C) Y-axis – The dependent variable (the unit that is measured) e.g. minutes, number observations, etc.

(D) Center Line – The center of the chart, representing the mean (average) of the points plotted.

(E) Points – The plotted data that has been collected.

(F) Standard Deviation – Indicates the amount of variation from the centerline (mean). Each side of the centerline extends to 3 standard deviations.

(G) Upper/Lower Control Limit – This is a calculated line based on the spread of your data.
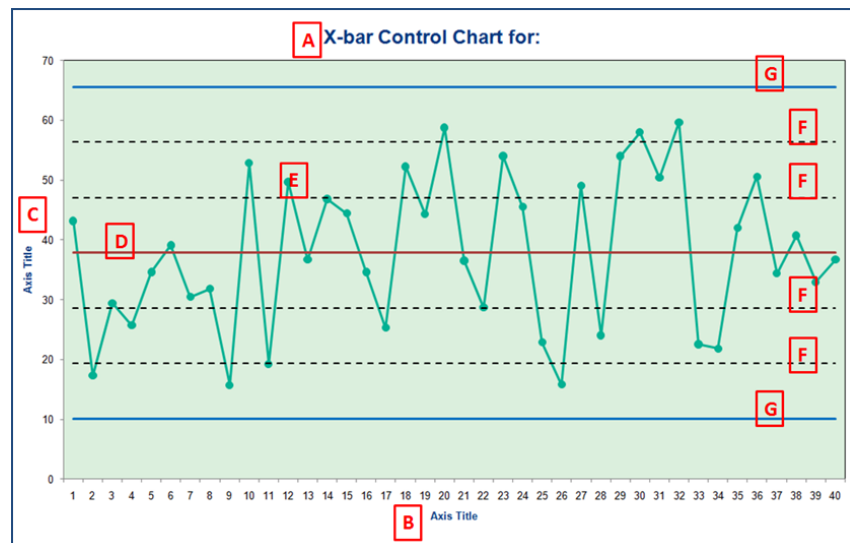
What are the rules to determine if the process is "out of control"?

- One point more than 3 standard deviations from the centre line.
- Nine or more points in a row on the same side of the centre line.
- Six or more points in a row continually increasing or decreasing.
- Fourteen or more points in a row alternating up and down.
- Two out of three points in a row more than 2 standard deviations from the center
- line
- Four out of five points in a row more than 1 standard deviation from the center line.
- Fifteen points in a row all within 1 standard deviation of the center line on either side of the center line.
- Eight points in a row all over 1 standard deviation of the center line, on either side of the center line.