

A hand is holding a smartphone. Overlaid on the phone's screen is a grid of white wireframe cubes. Several of these cubes are filled with various images: a landscape with green hills, a blue sky with white clouds, a blue and white patterned surface, and a blue and white abstract design. The background is a blurred image of a person's hands holding a smartphone, suggesting a user interacting with the data presented in the control chart.

CONTROL CHART

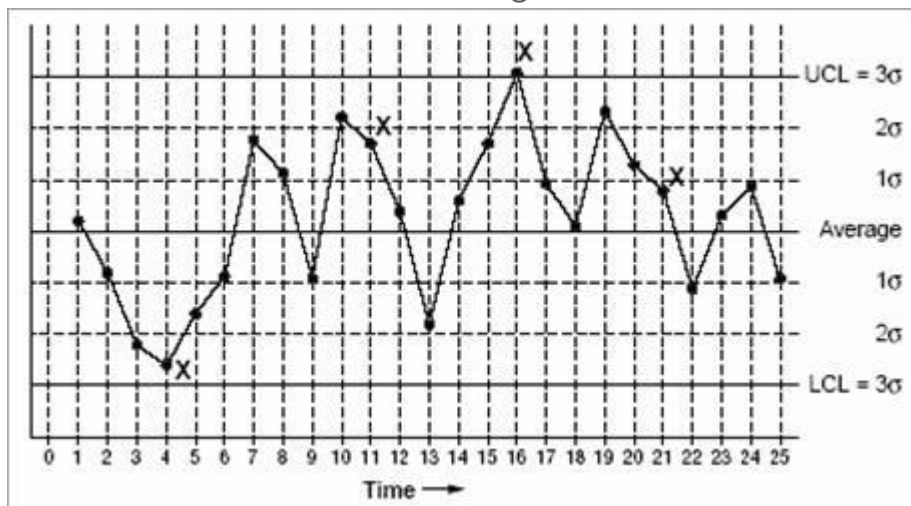
CONTROL CHART

Control charts, also known as Shewhart charts (after Walter A. Shewhart) or process-behavior charts, are a statistical process control tool used to determine if a manufacturing or business process is in a state of control.

The control chart is used to study how a process changes over time. Data are plotted in time order. A control chart always has a central line for the average, an upper line for the upper control limit and a lower line for the lower control limit. These lines are determined from historical data.

(Source: https://en.wikipedia.org/wiki/Seven_Basic_Tools_of_Quality)

Sample Control chart showing points plotted across time, average line, and standard deviation lines for Six-Sigma control



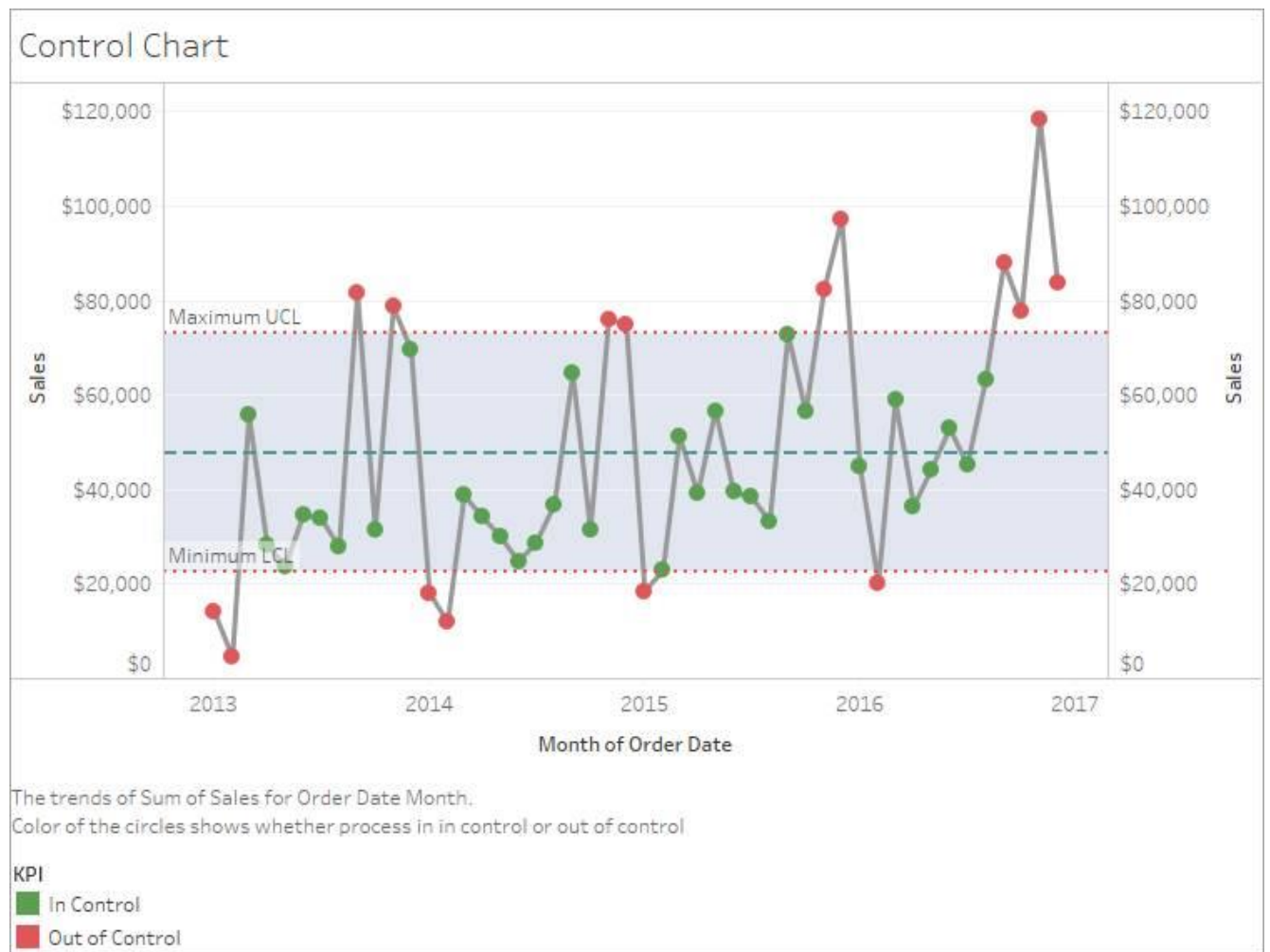
(Source: <http://asq.org/learn-about-quality/data-collection-analysis-tools/overview/control-chart.html>)

If analysis of the control chart indicates that the **process is currently under control (i.e., is stable, with variation only coming from sources common to the process)**, then **no corrections or changes to process** control parameters are needed or desired. In addition, data from the process can be used to predict the future performance of the process. If the chart indicates that the **monitored process is not in control, analysis of the chart can help determine the sources**

of variation, as this will result in degraded process performance. A process that is stable but operating outside of desired (specification) limits (e.g., scrap rates may be in statistical control but above desired limits) needs to be improved through a deliberate effort to understand the causes of current performance and fundamentally improve the process.

(Source: https://en.wikipedia.org/wiki/Control_chart)

Control chart in Tableau depicting ONE standard deviation and KPI's within it and outside it



Applications:

- When controlling ongoing processes by finding and correcting problems as they occur.
- When predicting the expected range of outcomes from a process.
- When determining whether a process is stable (in statistical control).
- When analyzing patterns of process variation from special causes (non-routine events) or common causes (built into the process).
- When determining whether your quality improvement project should aim to prevent specific problems or to make fundamental changes to the process.

Stepped Control chart in Tableau depicting ONE standard deviation and KPI's within it and outside it for each year



Here is another example of a control chart built in Tableau

