



Control Charts

Control charts are used to determine whether a process is stable and predictable by graphing metric data over time along with statistically derived upper and lower control limits.

Key components include:

- Central line - represents the process average
- Upper control limit (UCL) - thresholds for identifying high variation
- Lower control limit (LCL) - thresholds for low variation
- Data points - individual measurements plotted chronologically

Interpretations when points exceed control limits:

- Above UCL - unusually high variation signaling potential assignable cause
- Below LCL - unusually low variation that may signal issues
- Runs above/below center line - shift indicating change in process

When all points remain within UCL and LCL, the process is considered stable and repeatable. Excursions outside the limits indicate special cause variation needing investigation.

Benefits of control charts:

- Identify stability of processes
- Detect outliers and anomalies
- Require investigation when variability is abnormal
- Provide metrics to drive process improvements
- Visual mechanism to monitor processes

Control charts are invaluable statistical process control tools for improving consistency and reducing variation. They turn data into actionable information.