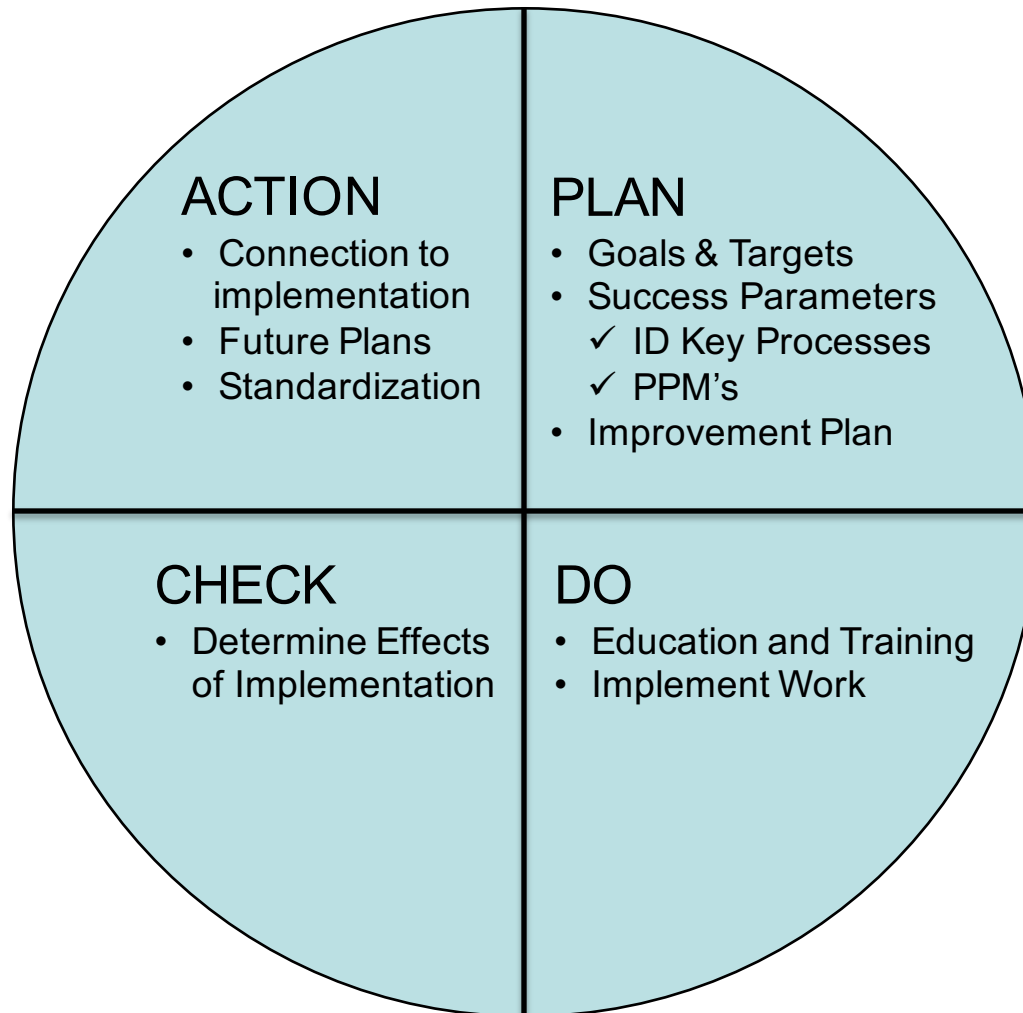


TQC Improvement Circle



TQC is:	TQC is not:
<ul style="list-style-type: none"> • A management philosophy/ operating methodology 	<ul style="list-style-type: none"> • A new program
<ul style="list-style-type: none"> • Breakthrough thinking 	<ul style="list-style-type: none"> • SOW=Same old way
<ul style="list-style-type: none"> • A structured disciplined approach to identifying and solving problems; and institutionalizing the improvement gained 	<ul style="list-style-type: none"> • Fire-fighting
<ul style="list-style-type: none"> • Conveyed by actions of management 	<ul style="list-style-type: none"> • Conveyed by slogans
<ul style="list-style-type: none"> • Top down 	<ul style="list-style-type: none"> • Bottom-up
<ul style="list-style-type: none"> • Long term 	<ul style="list-style-type: none"> • Short term
<ul style="list-style-type: none"> • Supported by QC tools 	<ul style="list-style-type: none"> • Driven by QC tools
<p>A permanent solution, a way of life</p>	<p>A quick fix</p>

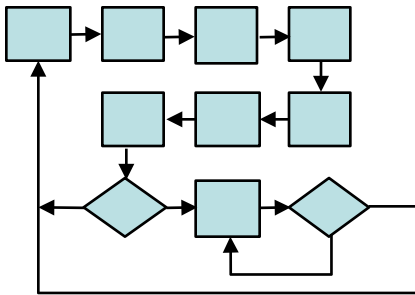
TQC Tools

TQC Tools

These tools are not a substitute for good judgement or process knowledge. They are aids to help convert data into information which can then be used to make objective decisions.

Process Flow Chart

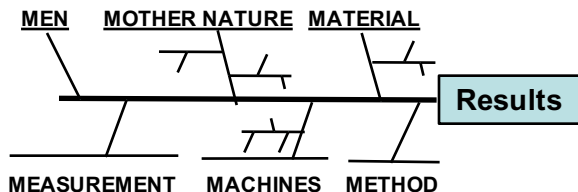
Shows a visual representation of a sequential steps in a process which also indicates the relationship between the component parts.



Indicates problem areas, unnecessary loops and complexity, and where simplification of a process is possible.

Fishbone Charts

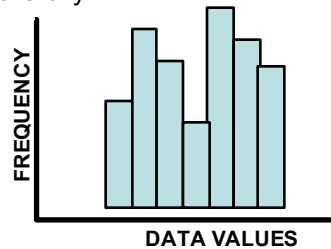
Used to organize potential factors that produce an observed result.



Help us identify and organize process variables or factors that are potentially responsible for the quality of our processes.

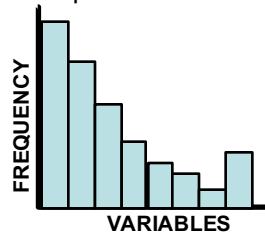
Histograms

Bar charts showing distribution of measured data; if done with averages, should be used carefully:



Pareto Charts

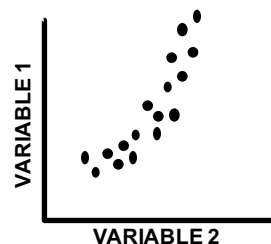
Bar charts showing relative importance of specific problem.



Should be based on data, not opinion

Correlation Plots

Shows relationship of two variables.



Should be done on single items, not averages.

Control Charts

Show level of statistical control (predictability)

TYPE	USAGE
X, R	Continuous Data
X, S	Continuous Data
P, C	Binary Data
C	Count Data
Stratification	Batch Process



Should not: Use on nonrepetitive processes. Confuse specs with control limits.

Natural Pattern (in statistical control): Most points near center. A few near control-limit. Rarely any points outside control-limit.

Unnatural Pattern (changing system): Three equal width zones between centerline and control-limit. Consider top and bottom half separately.

Instability Test: Label A, B, C from limit.

1. Single point outside limit.
2. 2 out of 3 successive points in Zone A or beyond.
3. 4 out of 5 successive points in Zone B or beyond.
4. 8 successive points in Zone C or beyond.