

ISO 10009:2024-06 (E)

Quality management - Guidance for quality tools and their application

Contents

Page

- Foreword..... v
- Introduction..... vi
- 1 Scope..... 1
- 2 Normative references..... 1
- 3 Terms and definitions..... 1
- 4 Quality tools..... 1
 - 4.1 General..... 1
 - 4.2 Review..... 2
- 5 Strategy..... 2
 - 5.1 SWOT analysis..... 2
 - 5.2 PESTLE analysis..... 3
 - 5.3 Porter’s five or six forces..... 3
 - 5.4 Vision and mission statements..... 4
 - 5.4.1 Vision..... 4
 - 5.4.2 Mission..... 4
 - 5.5 Other relevant tools..... 4
- 6 Process approach and planning..... 5
 - 6.1 SIPOC/COPIS (useful for identifying processes)..... 5
 - 6.2 Turtle diagram..... 6
 - 6.3 Control plan..... 7
 - 6.4 Flow diagram/swim lane diagram/cross-functional flow chart..... 8
 - 6.5 Authority matrix/RACI/RASCI..... 9
 - 6.6 Other relevant tools..... 10
- 7 Risk and opportunity..... 10
 - 7.1 SWIFT..... 10
 - 7.2 Risk register/risk assessment..... 10
 - 7.3 Failure mode and effects analysis (FMEA)..... 11
 - 7.4 Traffic light/heat map..... 12
 - 7.5 Other relevant tools..... 13
- 8 Objectives and objective management..... 13
 - 8.1 Kaizen..... 13
 - 8.2 Hoshin Kanri (also known as the “X-matrix”)..... 13
 - 8.3 Management by objectives (MBO)..... 15
 - 8.4 Other relevant tools..... 15
- 9 Customer focus/perception..... 15
 - 9.1 Quality function deployment (QFD)..... 15
 - 9.2 Net promoter score (NPS)..... 16
 - 9.3 Kano model..... 17
 - 9.4 Pugh matrix / Decision matrix..... 18
 - 9.5 Other relevant tools..... 19
- 10 Process performance..... 19
 - 10.1 Theory of constraints (ToC)..... 19
 - 10.2 Value stream management (VSM)..... 20
 - 10.3 Process wastes/muda..... 21

10.4	Work breakdown structure (WBS)	22
10.5	Spaghetti diagram	22
10.6	5S	23
10.7	Overall equipment effectiveness (OEE)	24
10.8	Production levelling (Heijunka)	25
10.9	Other relevant tools	25
11	Inventory management/preservation	25
11.1	Kanban	25
11.2	Just-in-time (JIT)	26
11.3	Other relevant tools	26
12	Detection and prevention	26
12.1	Error proofing/poka-yoke	26
12.2	Visual aid	27
12.3	Cost of quality (COQ)	27
12.4	Other relevant tools	28
13	Process control tools	28
13.1	General	28
13.2	Box plot	28
13.3	Pie chart	29
13.4	Radar chart/spider diagram	30
13.5	Pre-control	31
13.6	Critical to quality (CTQ) trees	31
13.7	Pareto chart	32
13.8	Gage repeatability and reproducibility (GR&R)	33
13.9	Other relevant tools	34
14	Corrective action/problem analysis	34
14.1	Root cause analysis (RCA)	34
14.2	Decision tree	34
14.3	Fault tree analysis (FTA)	35
14.4	Five whys analysis	36
14.5	Fishbone/Ishikawa diagrams	37
14.6	Is/is not analysis	38
14.7	Other relevant tools	38
15	Improvement	39
15.1	Benchmarking	39
15.2	Affinity diagram	39
15.3	Quality circles / QC circles	39
15.4	Brainstorming	40
15.5	Six Thinking Hats	40
15.6	Other relevant tools	41
16	Families of management tools	41
16.1	Six Sigma programme	41
16.2	Total quality management (TQM)	42
16.3	Other relevant tools	42
Annex A (informative) Overview of Plan-Do-Check-Act techniques		43
Annex B (informative) Storyboard examples for quality tool application		47
Annex C (informative) Summary of the attributes of quality tools		51
Bibliography		55