

Index

Symbols

3Ts of defect elimination, 167-170
3W2H, 260-261
5-Whys, 260, 261-262, 270
14 Points of Management, 213, 219

A

accuracy control, 36, 164, 171
Accuracy Controlled Enterprise, v-xiii,
37, 102, 131, 148, 152, 163-180, 172, 266-269
accuracy controlled procedures, 70
ACE 3T, 82, 126, 132, 144-147, 172-174,
180, 247-248, 256, 266-269
Activity Based Costing, 54, 193
asset management and wellness policy, 78
asset management policy, 78
autonomous work team, 158

B

Bathtub Curve, 242
benchmarking, 216, 268, 275

C

capital justification, 231
carpenter's creed, 10-11, 163
chance reduction, 113, 122, 133-139, 141, 143
change reduction, 131
Change To Win, 104, 186, 239, 254, 268, 270-271
Chart of Accounts, 54
CMMS, 65, 82, 102, 108, 143-147, 226, 231, 238, 244,
256, 276, 286
cognitive dissidence, 270
common cause, 29, 33, 89, 220, 238, 257-259
Computerised Maintenance Management System, 65, 82,
102, 108, 226, 276
condition monitoring, 22-23, 50, 81, 130-132, 142-144,
147, 238, 240-241
consequence reduction, 113, 122, 130, 133-139, 143
consequence reduction techniques, 133
continual improvement, ix, xii, 269, 275
control chart, 40-41, 91
cost map, 55, 192-193, 198-200
cost of failure, 45-47, 53-54, 60, 113, 117, 120, 139
cost surge, 2, 133
creative disassembly, 255-257
critical success factors, 193
criticality analysis, 115, 128, 147, 295
cross-functional team, 130, 142, 147, 160-162
cross-hair game, 25, 29, 33, 41, 162
Crow-AMSAA, 82, 86, 243, 249-250, 295

D

DAFT Cost, 2, 49-50, 54-56, 65, 70-72, 81, 109, 112-122,
128, 139, 143, 146, 231, 238, 241, 259, 261
Defect and Failure Total Costs, 2, 54

defect elimination, 43, 96, 122, 132, 138, 142, 168, 170-172
degradation cycle, 22
degradation management, 243
Deming Cycle, 90
Deming, W. Edwards, 27, 30, 37, 87, 213-214, 219-220
Design and Operations Cost Totally Optimised Risk, 68
Design-out, 130-131
DOCTOR, 68, 70-72, 100-101, 122
downtime cost, 228
DuPont, 41, 76, 295

E

Enterprise Asset Management, viii-x, 75-78, 97, 102, 116,
127, 244
equipment criticality, 114-117, 120, 132, 141, 143, 147
Equipment Criticality, 74, 80, 100, 114-116, 139, 141, 143,
241, 277
equipment failure, 2, 7, 17, 26, 30, 44, 50, 65, 70-71, 77, 93,
100-101, 113-114, 131, 139, 143, 229, 241, 256-257
equipment reliability, vii-xii, 5, 15-16, 30, 38-39, 42,
61-62, 80, 83, 87, 97-98, 122-125, 136, 140, 144, 154-
158, 164-168, 170-171, 187, 214, 221-222, 229-230,
238, 241, 245, 248, 266-267, 272
error-proof, 26, 168
error-proofing, 10, 14

F

failure mode, 128-131, 148, 230, 243-248, 277, 289
Failure Mode, 65, 80, 100, 115-116, 127-129, 142, 238,
296
Failure Mode and Effects Analysis, 80, 100, 115, 128-129,
142, 238
Failure Mode Effects and Criticality Analysis, 127
failure patterns, 240
failure prevention, 43, 53, 96, 132, 138-139, 168
failure pyramid, 139, 256
failure scenarios, 43
fault tree, 258-259, 290
Fault Tree, 257-259, 260
Fault Tree Analysis, 257
Finite Element Analysis, 19
fixed costs, 44-46, 199-200
FMEA, 65, 100, 127-132, 142-144, 147, 238, 241
FMECA, 100, 122, 127-130, 147, 152, 244, 277, 289, 295
frequency of an event, 107, 115, 130

H

HAZOP, 101-103, 278-279
hidden factory, 35
hierarchical organisation, 162
human error, ix, 5, 14-15, 23, 65, 86, 126, 245
human factor, ix, 26, 87

I

Instantaneous Costs of Failure, 49

ISO 4406, 32, 39, 267, 296
 ISO 9001, 75, 163, 270, 296

J

Japan Airlines, 12-13
 job quality, 167-169

K

Key Performance Indicators, 186, 208-210, 218-220, 254

L

Latent issues, 261
 Lean, x, 64, 89, 104, 160, 163, 172, 270, 280, 295
 life cycle, vii, 14, 19, 42, 61-62, 65, 68, 70-72, 76-77, 97,
 101, 132, 135, 241, 245-247, 263, 266, 272, 278, 288
 life cycle profits, 61, 68, 272
 lubricant contamination, 30

M

machine vibration, 29, 263-264
 maintenance management, x-xii, 8, 19, 76, 220, 238, 255
 maintenance policy, 79-80
 maintenance procedures, 23, 131
 maintenance standards, 101-103, 266, 279
 maintenance strategy, ix, 65, 79, 141, 148, 242
 maintenance work order, 221-222, 230
 materials of construction, 4, 17-20, 106, 245, 284
 Mean Time Between Failure, 234, 250
 Mean Time To Repair, 230
 Monte Carlo simulation, 244

N

Nolan and Heap, 240-241

O

organisation structure, 157
 out-of-calibration, 265
 Overall Equipment Effectiveness, 106, 212-213, 283, 293

P

parallel process, 10, 156
 parallel tasks, 13, 124
 Pareto chart, 227, 259
 PAS 55, 75, 296
 Physics of Failure, 16-19, 34, 132, 144
 Plant and Equipment Wellness, ix-xiii, 61-65, 75-78, 114-
 115, 119, 127-129, 141, 173, 187, 241, 271-273
 plant availability, 38, 42, 80-82, 106, 128, 154, 238, 263
 power laws, 136-137, 249
 precision maintenance, 103, 126, 132, 148, 164, 238, 249-
 250, 256, 263-268, 279, 284
 Precision Maintenance, 80, 103, 131, 249, 255, 263-271,
 284
 precision principle, 269
 preventive maintenance, 21, 32-33, 100, 120, 131-132, 142,
 230, 238, 240, 286, 289
 probability, 5, 8, 16-18, 31-39, 74, 91, 109-112, 123-128,
 139, 157, 230, 240-243, 289
 probability of failure, 8, 33-39, 123-124, 230, 289
 Process Boundary Method, 211-212
 process chains, 3
 process maps, 2, 63-65, 75, 100, 124, 130, 143-146, 245
 Process Step Contribution, 187, 192-93

Process Step Contribution Mapping, 55, 172, 186-195
 process variability, 291, 33-36, 41-43
 proof-test, 11, 170
 proof-testing, 12, 126
 push the limit, 214, 269-270

Q

quality control system, 160
 Quality Function Deployment, 99, 287
 quality management system, 75, 163, 172, 265

R

random failures, 231, 238, 243
 reactive culture, 135
 Reliability Centred Maintenance, 22, 127, 240-241, 289,
 296
 reliability engineering, 16-19, 76
 reliability growth, x, 8, 245-249, 255
 Reliability Growth Cause Analysis, 115-116, 127, 142,
 147, 245-247, 254
 Return On Investment, 8, 213
 risk analysis, 34, 64-65, 70-74, 82, 108, 113-115, 132, 140,
 241
 risk boundary, 74, 112-113
 risk control plan, 130
 Risk Control Plan, 122, 130
 risk equation, 45, 60, 107-109, 112-113, 133-137
 risk management, xii, 65-68, 76-82, 101-120, 128-141,
 169, 241-243, 278-279, 287
 risk matrix, 74, 107-117, 128, 141-148
 risk ranking table, 110
 risk reduction, 72, 100, 107-108, 116, 127, 135-138, 143-
 148, 241
 Root Cause Failure Analysis, 241, 255-257, 270
 run chart, 27, 36

S

Series Reliability Property, 8, 93, 248, 255, 260
 series system reliability, 8
 shaft misalignment, 39, 124
 silo hierarchy, 160
 softfoot, 256
 special cause, 29, 33, 89-93, 148, 220, 257
 Standardisation, 89
 standard operating procedures, 87, 166-168, 194, 284
 Standard Operating Procedures, 13, 165-169
 strength-of-material, 17
 stress concentration, 20

T

target, tolerance, test, 168
 Terotechnology, 75
 Time Series, 227, 233, 238, 248
 timeline, 228-230, 248
 Titanic Disaster, 133, 139
 tolerance bands, 169, 180
 Total Productive Maintenance, 147, 186, 270

U

Upper Control Limit, 36

V

value stream mapping, 64, 187, 189

Value Stream Mapping, 172
variability, 24-29, 33-43, 77, 89, 105, 168-171, 280-281,
291, 294
variable costs, 44-49, 199-200
voice of the customer, 99, 288
volatility, 24, 33-37, 89-91, 193

W

Weibull Analysis, 242-244, 250
Weibull parameters, 242, 244
Why Tree, 260
work quality assurance, 162, 172