

Index

- a**
- acquisitions 5, 232
 - analytical services 96
 - budgetary control 96
 - outsourced 96
 - applications research 162
 - assessment centre 32
 - assessors 33
 - range of tests 33
 - AstraZeneca 6
 - Aventis 6
- b**
- balanced scorecard 217
 - BASF 5, 75
 - Bayer 5
 - benchmarking 137
 - 7Ss model 137
 - competitive 137
 - functional 137
 - generic 137
 - internal 137
 - metrics 138
 - process 139
 - bp petroleum 26
 - brainstorming 169, 173, 183
 - facilitator 169
 - SCAMPERR 170
 - stimulating checklist 170
 - stimulation techniques 170
 - brainstorming session 169
 - Bristol-Myers Squibb 6
 - British Energy 26
 - budgets 112
 - annual plans 114
 - capital costs 115
 - personnel costs 114
 - plans 114
 - business analysis techniques 164
 - business strategy 216, 230
 - balanced scorecard 217
 - formulation 216
 - mission 216
 - strategy 216
 - vision 216
- c**
- career development 25, 37, 49
 - career pathway 51
 - career pathway map 52
 - dual ladder 50
 - career management 63
 - career rules 63
 - short and long term goals 63
 - your own career 63
 - change management 140
 - change initiative 142
 - change management skills 144
 - change process 141
 - change programme 143
 - embodying change 144
 - General Systems Theory 141
 - major changes 141
 - stakeholders 143
 - chemicals and equipment supplies 101
 - bar coding system 102
 - laboratory samples 102
 - manufacturing samples 102
 - Ciba 5
 - Clariant 5, 110
 - climate for innovation 154
 - interaction with the market 154
 - project management 154
 - skills base 154
 - strategy and targets 154
 - clinical development 242
 - combinatorial chemistry 105, 230
 - combinatorial libraries 100
 - communications 269
 - Company Secret 194
 - competency based assessment 16
 - competency-building 231
 - continuing professional development 45
 - continuous improvement 133, 142, 217
 - continuous improvement cycle 133
 - contract research organisations 90
 - core competencies 13, 202, 230
 - corporate R&D 73
 - cost allocation 113
 - global method 113
 - specific method 113
 - cost budget 112
 - cost control and monitoring 115
 - creating 181
 - five common steps 181
 - creative climate 152
 - chance to experiment 153
 - culture 153
 - freedom to think 153
 - strategy 153
 - wide contacts 153

- creative groups 60
 - characteristics 61
 - charismatic leaders 62
 - fear of failure 61
 - managing 60
 - self-managed teams 62
 - creative individual 155, 156
 - dimensions 155
 - fantasy 156
 - optimism 156
 - creative scientists 155
 - creative thinking 150, 151, 165, 166
 - barriers 166
 - evaluation of the ideas generated 182
 - evaluation team 182
 - six dimensions 151
 - creative thinking techniques 168
 - creativity 9, 147, 148, 149
 - definitions 149
 - creativity tool 167
 - critical paths 266
 - method 266
 - customer–supplier relationship 132
- d**
- de-layering 55
 - de-manning 55
 - Degussa 75
 - development centres 33
 - development risks 248
 - disciplinary action 48
 - Dow 73, 74
 - downsizing 55
 - drug development pathway 90
 - drug discovery programs 109
 - DSM 75, 90
 - DuPont 5, 74, 150
 - DyStar 5
- e**
- EINECS 239
 - Employment Rights Act 35
 - engineering and buildings maintenance 102
 - environmental challenge 224
 - Environmental Management System 127
 - ISO 14 000 series 127
 - establishment of the manufacture and sales 243
- f**
- field and customer trials 241
 - financial control 111
 - first generation R&D companies 82
 - Food and Drug Administration 124
 - fourth generation R&D companies 83
 - fourth-generation R&D 65
- g**
- Gantt Charts 264
 - generation of ideas 167
 - generic groupings type 4
 - biological 4
 - fine chemicals 4
 - polymers 4
 - raw and bulk materials 4
 - services 4
 - specialities 4
 - GlaxoSmithKline 6
 - global R&D 87
 - alliances 88
 - collaborations 88
 - global team 87
 - trans-national R&D 88
 - globalisation 5, 87, 200
 - Good Laboratory Practice (GLP) 122
 - principles 123
 - Good Manufacturing Practice (GMP) 124, 242
 - GMP principles 125
 - minimum requirements 124
 - Green Chemistry 224
- h**
- headhunters 21
 - health and safety 116
 - audit 120
 - COSHH 116
 - indicators 119
 - legal background 116
 - management 117
 - monitoring 120
 - OSHA 117
 - performance standards 119
 - review 120
 - risk assessment 118
 - health, safety and environment 101
 - Henkel 93
- high throughput experimentation** 106
- high throughput screening** 106
- Hoechst 5
 - HSE 238
 - human resource 11, 269
 - harnessing 11
 - monitoring the performance 269
- i**
- ICI 5
 - idea generation 166
 - information and library services 97
 - commercial databases 98
 - innovation 9, 147, 148, 160, 162
 - core technologies 162
 - definitions 149
 - drucker 160
 - functional excellence 164
 - scientific research 163
 - sources 160
 - unmet customer needs 162
 - innovation chain 7, 233, 234
 - chemical reaction hazards 238
 - clinical development 242
 - field trial 241
 - full-scale manufacture 242
 - HSE 238
 - new chemical product 234
 - pilot plant trial 241
 - plant operational hazards 238
 - process development 237
 - product registration 239
 - research target document 234
 - speculative research 234
 - innovation pathways 159
 - innovation portfolio 216, 218, 219
 - developing 219
 - management 218
 - innovation process 160
 - innovation strategy 218
 - development 218
 - innovative environment 65
 - innovative individual 155
 - attributes 155
 - intellectual assets 185

intellectual property 96, 185, 186, 197
 – assignment 201
 – code of best practices 195
 – development 198
 – exclusive licence 201
 – exploitation 197
 – external licensing 201
 – joint venture 198
 – personnel 186
 – protection 185
 intellectual property rights 97
 internal records 194
 interviewing 29
 – short list 29
 invent-make-sell phases 256
 IT and telecommunications 99
 – databases and software 99
 – modelling 99
 – networks and communications 99

j
 job advertisement 25
 – essential elements 25
 – examples 26
 – options 28
 job definition 21, 22, 30
 – selection interviewing 30
 job descriptions 22, 23
 – job title and purpose 23
 – key accountabilities 23
 – size or dimension 23
 – special features 23
 job evaluation 21, 23
 – analytical methods 23
 – Hay Evaluation Method 24
 – job classification 23
 – market comparisons 23
 – non-analytical methods 23
 – paired comparisons 23
 – whole-job ranking 23
 job requirements 31
 joint venture 197, 198, 200
 – during the relationship 200
 – rules 200
 – setting up the relationship 200

k
 Kirton Adaption-Innovation Inventory 158
 – adaptors 158
 – innovators 158
 know-how 185
 knowledge 204, 205
 – explicit 204
 – knowledge conversion 207
 – Kolb's Learning Cycle 205
 – repositories 205
 – tacit 204
 knowledge based innovation 161
 knowledge exploitation 208
 – Dow Chemical Project 208
 – Intellectual Asset Management Model 209
 knowledge management 203, 206, 227, 269
 – definition 203
 – DIKAR model 203
 – KM skills 206
 – knowledge manager 203
 – knowledge sharing 203
 – technological function 206

l
 laboratory automation 103
 – lessons for management 109
 – strategy 103
 – synthetic automation Specification 107
 – system integration and throughput 108
 – the analytical laboratory 104
 – the synthesis laboratory 105
 laboratory information management system (LIMS) 100, 105
 Lateral Thinking 165, 167, 168, 169
 – distortions 168
 – provocations 168
 – reversals 168
 lead times 248
 – lead-time delay 249
 license 197

m
 management competencies 59, 60
 managerial leadership skills 58
 – interpersonal skills 59
 – motivational skills 59
 – perceptual or conceptual skills 58
 – presentational skills 59
 market launch 243
 matrix 79
 – co-ordination matrix 79
 – functional manager 80
 – overlay matrix 79
 – programme managers 80
 – project manager 80
 – secondment matrix 79
 MBTI Creativity Index (MBTI-CI) 157
 – breakthrough creativity 157
 mergers 5
 metaphorical analogy 171, 183
 microreactors 105, 110
 microscale experimentation 109
 – main areas 110
 mind maps 172
 MITI 239
 morphological analysis 173, 183

n
 network diagrams 265
 new business 75
 – venture groups 75
 new business manager 199, 232
 new process targets 229
 – new application processes 229
 – new manufacturing processes 229
 new product research 230
 new product targets 225
 – customer visits 226
 – economic 227
 – evaluation 227
 – market intelligence 226
 – market surveys 227
 – patent literature 226
 – technical 228
 – technical symposia 226
 – trade literature 226

- new products 244
 - faster evaluation 244
- new products and processes 224
- Novartis 6
- o**
- one stop shop 91
- organisational comparisons 81
 - business connection 81
 - management clarity 81
 - R&D skills base 81
- organisational cultures 69
 - change orientated 70
 - Greek temple 70
 - person orientated cluster 70
 - power orientated web 69
 - spread sheet 70
 - task orientated 70
- organisational knowledge creation 208
- outsourcing 66, 89, 96, 232
 - guidelines 91
 - reasons 89
- outsourcing R&D 89
- overall management of time 252
- p**
- parallel synthesis 105
- patent office 191
- patent specification 188
- patent strategy 196
- patents 185, 186
 - application 189
 - areas 186
 - compositions of matter 186
 - disclosures 190
 - EPO 192
 - filing 189
 - infringement 192
 - inventorship 188
 - know how 193
 - prior art 190, 191
 - priority date 191
 - prosecution 189
 - specification 191
 - time period 186
 - trademarks 193
 - trade secret 193
 - US differences from the EPO 192
 - USPTO 187
- performance appraisal 39, 43, 44
 - 360° appraisals 43
 - competency based appraisals 43
 - schemes 43, 44
 - traditional appraisals 43
 - upwards appraisals 43
- performance criteria 37
- performance management 21, 37, 38
 - basic method 38
 - monitoring 42
 - Process 39
 - reviewing 42
 - systems 21, 38
- performance measurement techniques 134
 - cause and effect diagram 136
 - fishbone diagrams 136
 - flow charts 135
 - Pareto Analysis 135
- performance objectives 39
- performance related pay 37
- performance review 87
- PEST 164
- Pfizer 6, 88
- pilot plant manufacture 241
- plant output 223
- process development 84, 237
 - chemical unit processes 237
 - manufacture 238
 - plant requirements 238
 - unit operations 237
- Procter & Gamble 93
- product life cycles 246, 247
 - profit 247
 - sales volume 246, 247
- product quality 223
- product registration 238
 - base set of information 240
- program evaluation and review technique (PERT) 266
- project definition 259
- project evaluation methodology 218
- project management 10, 213, 233, 255, 257, 264
 - axis 257
 - completion 269
 - controlling 267
 - emergency procedures 268
 - formal launch 267
 - interpersonal skills 258
 - methodologies 255
 - monitoring 267
 - organisational skills 258
 - planning 262
 - potential problems analysis 268
 - resource allocation 262
- project manager 256, 257, 258, 267, 268
- project portfolio 14
- project statement 259
- project team 258
 - attributes 258
- psychometric tests 32
 - ability (cognitive tests) 32
 - personality characteristics 32
 - predictive validity 33
- q**
- quality assurance 125
- quality assurance programme 123
- quality audit 127
- quality management systems 122, 125, 128
 - data recording 128
 - electronic notebooks 128
 - electronic records 129
 - ISO 9000 series 125
- quality manager 122, 127
- r**
- R&D 69, 70, 83, 130, 140, 251
 - agendas and priorities 252
 - customers 140
 - functional organisation 71
 - interfaces 251
 - internal organisation 83
 - manufacturing 251
 - marketing 251
 - organisational environments 70
 - structural components 69
 - total quality management 130

- R&D contractor 77
 - budgetary controls 79
 - service level agreements 77
 - R&D office technology 99
 - R&D organisation 8
 - first generation 8
 - fourth generation 8
 - second generation 8
 - third generation 8
 - R&D personnel 9, 20
 - R&D portfolio 213, 214, 219
 - cost benefit analysis 220
 - cost benefit targets 220
 - environmental issues 224
 - existing products 219
 - manufacturing support 223
 - materials efficiency 220
 - new application processes 224
 - new product research 225
 - new products 224
 - plant output 223
 - processes 219
 - product quality 223
 - research 229
 - R&D projects 215
 - evaluation 215
 - selection 215
 - R&D team manager 57
 - R&D work groups 84
 - REACH 239, 240
 - guiding principles 240
 - recruitment 20
 - acceptance and induction 36
 - choice 34
 - offer 35
 - recruitment process 22
 - regulatory affairs 121
 - definitions of terms 121
 - return map 247
 - return on investment 245
 - extended product life cycles 245
 - faster 245
 - increased 245
 - reward 48
- s**
- Sandoz 5
 - second generation R&D companies 82
 - serendipity 163
 - six thinking hats 174
 - skill requirements 14
 - skills audit 17
 - classes of information 17
 - skills audit process 14
 - skills base 13, 14, 37
 - developing the people 37
 - skills gap 16, 18
 - deriving 18
 - discovering 16
 - stage-gate process 233, 235
 - concept to product 235
 - standard operating procedures 123, 124, 242
 - statistical experimental design 108
 - STEEP 164
 - strategic business unit 66, 73, 76, 77
 - business tube model 76
 - critical mass 76
 - organisation 77
 - strategic research targets 230
 - generic types 230
 - succession plan 37
 - succession planning 53, 54, 55
 - contingency plans 55
 - controllable 54
 - uncontrollable 54
 - super CROs 91
 - support 95
 - SWOT 164
 - SWOT analysis 164
 - synectics 171, 183
 - fundamental precepts 171
 - Syngenta 230
- t**
- team selection 256
 - team working 57
 - cross-functional 57, 58
 - cross functional teams 81
 - multi-disciplinary 57, 58
 - self-managed 57
 - trans-national 57
 - technology transfer 202
 - fostering 202
 - Inward 202
 - third generation R&D companies 82
 - third-generation R&D 65
 - time management 243
 - innovation chain 243
 - lead-time 243
 - time compression management 250
 - time-to-market 243, 244
 - TOSCA 239
 - Total Creativity Management 150
 - Total Quality 131, 136
 - Total Quality Management 47, 130, 132
 - continuous improvement 132
 - quality Procedures 131
 - Toxicology 101
 - trade secrets 185, 193
 - trade union representation 48
 - trademarks 185, 193
 - training and development 45
 - trial manufacture 242
 - TRIZ 176, 178, 180
 - 39 Features 178
 - 40 Inventive principles 179
 - contradiction matrix 177
 - evolution trends database 180
 - levels 177
- u**
- US Patent and Trademark Office 130
- v**
- venture capitalists 231
 - vertical thinking 167
 - virtual pharmaceutical company 93
 - virtual R&D company 92
 - management 92
- w**
- work breakdown structure 260
 - work groups 84
 - group leader 85
 - group meetings 86
 - multi-disciplinary 87
 - team leader 84
 - Wyeth 88
- x**
- Xerox 137