Index

A

Above-the-line planning, 38–39
Acceptance-building, 111
Achievable/attainable goals, 134, 229
Acquisition constellation, 47, 220
Acting like natives, 111–112
Action-Focused Assessment (Kasse), 151
Actions, 14, 106
Activities
defining common, 9
lead time, 215
participants with useful perspective on, 76
Adoptability pilots, 192
Adopter Analysis approach, 81
early adopter, 193, 195
eyearly majority, 194, 195
innovator, 193, 195
lagger, 194, 195
late majority, 194, 195
Adoption, 148, 252, 254, 257
Adoption Commitment curve, 68–70, 85, 205
categorizing transition mechanisms by, 212–214
Satir Model and, 206
transition mechanisms, 211
Adoption diffusion measurement, establishing events, 258–261
Adoption population for pilot projects, 192–195
Adoption progress measurement, 245
Adoption stage, 69, 214, 259
Agile methods, 96, 207–211
Agile software developers, 65
Agile Software Development (Cockburn), 207
Agile software development methods, 18
Agility, 9, 109
Alternative practices choice, 57–58
Amazon.com Web site, 230
American Society for Quality, 266, 270
Analysis, lack of objectivity in initial gap, 39
Analyze stage, 69, 70, 82–84
PI case study, 97–98
Analyzing
past defects and problems, 132
potential innovations and improvements, 132
Andelfinger, Urs, 25
ANSI (American National Standards Institute), 23
Anticipating Change (Weinberg), 202
Anxiety questions, 124
Applications Management document set, 23
Appraisal choice, 53
Appraisal life cycle, 30–31, 36
Appraisal teams, 158–159
Appraisals, 151
beneficial activities, 152
different forms of, 31
external, 31, 152
external labor, 156
foolish compliance, 152
internal, 31
internal labor, 156
managing resources, 156–159
never stopping, 152
philosophies, 153
preparing evidence for, 157–158
support materials, 156
Artifacts, defining common, 9
As-is processes, 111, 238, 241
Assessment, 151
C

Candidate-roles list, 238
Capability Level 0, 56
Capability Level 1, 56
Capability Level 2 Generic Goal, 55
Capability Level 2 Generic Practices, 60
Capability Level Generic Goal, 55
Capability Level profiles, 54, 56
Capability Levels, 54, 55, 57
Capability maturity, 4
Capability Maturity Models, 11–12
Capability Profile, 56–57
Capability questions, 124
CAR (Causal Analysis and Resolution) Process Area, 50, 132
Carnegie Mellon University, 21
Causality, 145
CBA (CMMI-based Business Analysis), 230–235
collection of, 230
conference room, 230
execution of, 232–234
facilitator, 230, 231
flip charts, 230
initial scope, 231
model representation, 230
room setup, 231
sponsoring team and opinion leaders, 230
sticky notes, 230
CCMI-PD Process Areas, 48–51
Central repositories, 111
Cepeda, Sandra, 59
Ceremony, 81
Change
capturing rationale, 81
dynamics of reactions to, 127
human dimensions of, 111
ignoring history of previous attempts, 40
learning stages, 205–206
measurable improvement results, 147–148
people issues, 199–202
ROI (Return on Investment), 255
skills for managing, 112
stress, 105
Change cycle, 129
Change management, 83
Chaos Cocktail Party, 83, 264

B

Balanced Scorecard concept, 134–135
Balancing Agility and Discipline (Boehm and Turner), 9, 18
Baseline existing performance, 80
Basili, Victor, 16
Behaviors
  adapting to hostile situation, 112
  changing, 119
Below-the-line planning, 38–39
Benchmarking processes, 31
Benefit, showing from effort, 107
Best practices, 73
Box, George, 61
Business, 5–7, 11
developing quality processes, 22
differences adopting CMMI, 94
models and methods promoting value, xix
Business Analysis, 76, 96, 180–181
Business goals
  CMMI impacts, 72–73
  as customer needs, 181
  Decide stage, 72
  improvement goals based on, 134
The Business Perspective document set, 23
Business Process Reengineering, 4, 20, 109
Business strategy, 137
Business values
  driving process improvement, 11–12
goals and, 34
  tying improvement activities to, 95
Buyer’s Risk Cycle, 125–127
Buyer/sponsor’s, 123

Associated with Specific Goals Specific Practices, 57
Assumptions
documenting, 81
fitting organization’s conditions with, 137
Avoidance, quantifying, 146
Awareness stage, 69
awprofessional.com Web site, 267
AYE (Amplifying Your Effectiveness) conference/workshops, 267
Balanced Scorecard concept, 134–135
Balancing Agility and Discipline (Boehm and Turner), 9, 18
Baseline existing performance, 80
Basili, Victor, 16
Behaviors
  adapting to hostile situation, 112
  changing, 119
Below-the-line planning, 38–39
Benchmarking processes, 31
Benefit, showing from effort, 107
Best practices, 73
Box, George, 61
Business, 5–7, 11
developing quality processes, 22
differences adopting CMMI, 94
models and methods promoting value, xix
Business Analysis, 76, 96, 180–181
Business goals
  CMMI impacts, 72–73
  as customer needs, 181
  Decide stage, 72
  improvement goals based on, 134
The Business Perspective document set, 23
Business Process Reengineering, 4, 20, 109
Business strategy, 137
Business values
  driving process improvement, 11–12
goals and, 34
  tying improvement activities to, 95
Buyer’s Risk Cycle, 125–127
Buyer/sponsor’s, 123
CMMI: Guidelines for Process Integration and Product Improvement (2d ed.), 21
CMMI adoption pages, 13
CMMI Business Analysis, 125
CMMI constellations, 220
CMMI Distilled (Ahern et al), 21, 53, 73, 95
CMMI Impact Study (Goldenson and Gibson), 34
CMMI implementation, finding and selecting pilots, 191–197
CMMI in Small Settings Pilot Toolkit Web site, 268
CMMI ML2 (Maturity Level 2), 100
CMMI models, materials contained in, 47–48
CMMI Process Improvement Web site, 269
CMMI Product Suite, 47
CMMI Survival Guide, 95, 96
CMMI Technology and User’s conference, 164
CMMI Technology Conference and Users Group, 267
CMMI Transition Aids BSCW Web site, 268
CMMI-based Business Analysis, 100, 136
CMMI-based improvement value network, 203
CMMI-PD (CMMI for Product Development) model, 46
CMMI-SE/SW model, 46
CMMI-SE/SW/IPPD model, 46
CMMI-specific appraisal, 151
COBIT (Control Objectives for Information and related Technology), 24
Cockburn, Alistair, 200
COCOMO II, 146
Collateral activities supporting process improvement, 29
Commit stage, 69, 70, 166
first time through, 84–85
PI case study, 98
Communication mechanisms, 69, 85, 211
Communications, 111
agile methods and, 207–211
chain reaction of poor, 108
implementation support mechanisms and, 211–215
inability, 210–211
information restructuring and shared experiences, 210
learning behavior stages, 211
maintaining, 107
never knowing what you experience, 210–211
new or changed processes, 111
 parsing complex experiences differently, 207, 210
preventing fear and panic, 108
remembering where you are, 107
requirements, 180
stakeholders, 207–215
vanquishing fear and panic, 108
Communications table example, 208–209
Competitor performance data, 146
Computer Sciences Corporation, 16
Computer.org Web site, 269
Concept information, 184
Conferences, 265–257
Configuration Management Process Area, 78
Configurations, managing, 51
Confirming questions, 124–125
Congruent Action (Weinberg), 202
Constellations, 220
Consultants, 96, 197–199
Contact stage, 69
Contact/Awareness stage, 212, 252, 257–258
Continuous representation choice, 53–57
Control questions, 124–125
Conway’s law, 12
Cooliemon.com Web site, 230
Cost
defining, 145
 savings, 73
Cost avoidance, 146
Cost-effective attribute, 228
Creativity, 109
Criteria, 173
Critical success factors, 11–12
Crossing the Chasm (Moore), 192
CrossTalk magazine, 270
CSI (Crime Scene Investigation) technique, 86–87
Chaos Cocktail Party and, 262–264
example instructions for participants, 263
Improvise exercise, 109
Cultural environment, 111
Culture, dealing with change, 39
Index 283

Customer-facing processes, 228
Customer-quadrant business goals, 228
Customer-quadrant improvement goals, 228
Customers, 249
  enhancing satisfaction, 72
  goals, 135
  improving satisfaction, 15
  suppliers and, 73

D

DAR (Decision Analysis and Resolution) Process Area, 50
De facto standard, 46
De jure standard, 46
Decide stage, 69, 70
  business goals, 72
  figuring out where you are in, 218
  help from process improvement, 71–72
  identifying risks, 73
  persons involved in making improvements, 77–79
  PI case study, 93–96, 100–101
  starting toward process improvement, 74–77
  when to try, 79–80
Decision Analysis and Resolution Process Area, 78, 180
Decision-implementation model, 67–68
Decision-making, repeating for desired results, 88
Defects
  analyzing past, 132
  Six Sigma, 15
Deming, Juran, and Crosby quality paradigm, 72
Demo subprocess, 241–242
Demographic view, 68
Deploying changes, 199–206
  people issues in managing, 199–202
  technology adoption approaches, 202–203
  transition mechanisms, 205–206
  value networks, 203–205
Deploying improved processes, 32–34, 33 consultants, 197–199
  deploying changes, 199–206
  finding and selecting pilots, 191–197
  size-based advantages and disadvantages, 37
Design stage, 78
  Designated senior-management sponsor and team, 168–169
  Designing processes, 33
  Desired behavior, 40
  Detaching stage, 211
  Developed system, 12
  Developing
    necessary guidance, 80–81
    process guidance, 181–188
    useful process guidance, 109
  Diagnosis, 14
  Diffusion events, 258–261
  Diffusion measurement, 97, 148, 245, 251–258
    Adoption, 252, 254, 257
    Contact/Awareness, 252, 257
    Institutionalization, 252, 254
    key transition mechanisms, 251
    larger populations, 251
    phased transition mechanisms, 251
    Trial Use, 252, 257
    Understanding, 252, 255, 257
  Discipline, 3, 9
  DLI (Decision-based Lifecycle for Improvement), 19, 65–66, 95
    adoption commitment curve, 68–70
    Analyze stage, 70, 82–84
    baseline existing performance, 80
    Commit stage, 70, 84–86
    completing initial cycle, 82
    Decide stage, 70, 71–80
    decision-implementation model, 67–68
    developing necessary guidance, 80–81
    emphasis on decisions, 88
    implementing decision correctly, 68
    minimizing staffing requirements, 167
    monitoring deployment, 82
    people making changes at project level, 77
    points-of-interest view, 66–67
    Reflect stage, 70, 86–88, 106
    results without infrastructure in place, 32
    right decision about adoption, 67–68
    SMART goals for first cycle, 136
    stages, 68, 70
    training users, 81–82
DLI (Decision-based Lifecycle for Improvement) (cont.)
Try stage, 70
trying model elements, 80–82
DMAIC (Define, Measure, Analyze, Improve, Control), 15
Documentation, 81, 181
Documents, status of, 174
Domain standards, 12
Double-loop learning, 86
Drexler-Sibbett Team Performance Model, 79, 164–166, 269

E
Early Adopters, 193, 195, 215
Early Majority, 194, 195, 215
EDPA Auditors Foundation, 24
Effective measurement, 72
EFO (Experience Factory Organization), 17
Emotional Intelligence (Goldman), 111
Emotional Quotient, 111
Empirical data, 84
Employees, employer of choice, 72
End-user process description standards, 136
Engineering Management policy, 59
Engineering Process Areas, 48
Environment, 5–6
EPG (Engineering Process Group) model, 77, 161, 169–170
Equivalent staging, 56
Establishment, 14
Evaluation, 151
Examination Institutes, 23
Example target profile, 55
Expected elements, 57
Experience, learning from, 18
External appraisals, 31, 100–101, 152
External consultants and team, 169
Extreme Programming, xviii

F
Facilitator, 250
Fact information, 184
Failures
evaluating, 18
learning from, 188
Fear and panic, 108
Feedback, 82, 201
Financial goals, 134
Fluent stage, 211
Following stage, 211
Foolish compliance, 152
Foreign element, 127–129
accommodating, 128
deny existence of, 200
ignoring, 128
making it go away, 200
processes as, 187
rejecting, 128
Formal appraisal
against defined model scope, 153–156
specified periods, 153–154
Forrester, Eileen, 203
Fowler, Martin, 65
Function points, 147–148
Fundamental Support Process Areas, 167
Funding sources, 107

G
Gantthead Web site, 269
Gap analysis, 96–97, 151, 181
Generic Goals, 53, 57, 131
Generic Practice 2.1, Established an Organizational Policy, 59
Generic Practice 2.6, Manage Configurations, 60
Generic Practice 3.2, 188
Generic Practices, 21, 53
associated with Generic Goal, 57
dependencies, 59
Process Areas and, 60
timing choice, 58–60
Goal and Role Clarification stage, 166
Goals
achievable/attainable, 134
alternative practices choice, 57–58
business goals basis, 134
business values and, 34
CMMI, 131
customer, 135
date for achieving organizational maturity level, 34
developing and measuring, 34, 37
financial, 134
forgetting ultimate, 40
identifying and ranking, 11
improvement, 96
learning and innovation, 135
Maturity Level goals, 54, 135–136
measuring, 83, 134, 145
model-based improvement, 144–145
not achievable or measurable, 40
operations, 135
overall improvement effort, 120
quantifiable, 17
realistic, 119
realistic/relevant, 134
segmenting, 134–135
setting, 83, 132–136
size-based advantages and disadvantages, 37
SMART, 134
specific, 134
sponsor objectives alignment, 132–136
time-based/tangible, 134
useful, 134–135
Gordon, Witold, xx, 42, 90, 116, 224
GQM (Goal/Question/Metric) paradigm, 17
Group learning, 10
Grove Web site, 134, 165, 167, 269
Guide to the Project Management Body of Knowledge, 148

H
Hawthorne effects, 147–148
Hierarchy and Information Mapping, 185
High Performance stage, 166
Histogram, 138
History, 143
History-related statements, 141
Humphrey, Watts, 218

I
IBMM and Improvise, 109
ICSP (International Conference on Software Process), 266
ICT (Planning to Implement Service Management, Information, and Communications Technology) Infrastructure Management document set, 23
IDEAL model, 13–15, 19
Ideas
prioritizing, 262
risks affecting, 144
IDEF (Integrated DEFinition), 186
IEEE (Institute of Electrical and Electronics Engineers), 12
IEEE Software magazine, 270
IEEE Web site, 269
Imagination, 109
Implementation
developing plan, 81
mechanisms, 69, 211–212
repeating for desired results, 88
staged representation, 55
support mechanisms, 85, 211–215
Implementation choice, 53
Implementation stage, 78, 166
Implementing processes, 33
Improvements
activities, 188–189
goals, 96
infrastructure, 85
internal staff focal point, 99
selecting to try, 132
shared vision, 133–136
Improving processes
applying, 13
choices in approach, 13–20
yielding strong ROI (return on investment), 12
Improvise, 109
Inability to communicate experiences, 210–211
Incomplete Level, 56
Incremental informal appraisal, 154–155
Individual learning, 10
Industry standards and benchmarks, 80, 146
Industrywide recognition for excellence, 73
Informal appraisal, 154–155
Information
  differences in perception of, 207, 210
  Information Mapping types, 183–185
  measuring and tracking, 52
  multiple views, 173
  restructuring, 210
  usefulness, 52
Information Mapping, 80, 98, 188
  chunking, 185
  Classification information, 185
  Concept information, 184
  Fact information, 184
  hierarchy, 185
  information types, 183–185
  labeling, 185
  learning about, 186
  Principle information, 183
  Procedure information, 183
  Process information, 184
  recommended writing process, 185
  relevance, 185
  Structure information, 184
Information Mapping, Inc., 186
Informative elements, 57
Infrastructure, 161–162
  developing and sustaining team, 162–164
  developing team, 164–167
  measurement system/repository, 175–177
  minimizing, 61
  PAL (Process Asset Library), 170–175
  supporting and sustaining CMMI implementa-
  tion, 167
Infusion measurement, 148, 245, 246–251
Initiation, 13
Innovators, 193, 195, 215
In-process evaluations, 189
Institutionalization stage, 69, 214, 252, 254, 260
Integrated process and product development process improvement model, 46
Integrated Supplier Management, 197
Integration and Practice stage, 82
Integration stage, 78
Internal appraisals, 31
Internal capability, 169
Internal focal point, 169
Internalization stage, 69
International standards, 22
Interoperable process improvement, 24–26
“Introduction to CMMI” course, 21
Introduction to CMMI trainer, 163
IPM (Integrated Project Management)
  Process Area, 49, 120, 132, 188, 197
  alignment with organization, 133
  developing and sustaining team, 162–164
  tailoring practices, 133
IPRC (International Process Research
  Consortium), 219–220
IPRC (International Process Research
  Consortium) Web site, 268
IQ (Intelligence Quotient), 111
ISACA (Information Systems Audit and
  Control Association), 24
ISACA Web site, 24
ISO (International Organization for Stan-
  dardization), 12, 22
  intellectual-property rights for standards, 23
  Life Cycle Processes for Very Small Enter-
  prises (VSE) working group, 221
ISO 9000 standard, 22, 98
ISO 12207, 22–23
ISO 15288, 22–23
ISO 15504, 22–23
ISO Standards Store Web site, 269
ISO Web site, 22
ISQC (International Software Quality
  Conference), 266
IT (information technology), 23–24
  iteration, insistence on, 18
ITGI (IT Governance Institute), 24
ITGI Web site, 24
ITIL (Information Technology Infrastructure
  Library), 23
ITIL Management Web site, 269
ITIL Web site, 23

J
Joiner and Associations high-performance
  team approach, 164
Journals, magazines and e-zines, 270
Index 287

K
Keep/change lists, 189
Key stakeholders, 81
Key targets, 11
Key transition mechanisms, 251
Kirwan, Pat, 25
Kiviat diagram, 138
Knowledge, 10, 32
Komroff, Manuel, xx

L
Labeling Information Mapping, 185
Laggard, 194, 195
Laporte, Claude, 221
Large organizations and PAL (Process Asset Library), 172
Late majority, 194, 195
Leadership communication and sustaining sponsorship, 120–122
Lean Aerospace Initiative, 4
Lean manufacturing (Toyota), 109
Learning, 211
innovation goals, 135
process improvement, 10–11
from processes, 14
from successes and failures, 188
Lessons learned, 99
Level 5 organizations, 18
Level of Use goals, 148, 246–247
criteria for accomplishment, 247
Customer, 249
diffusion, 251–258
data collection procedures and tools, 176
facts shown by, 84
filtering and synthesis requirements, 176
function points, 147–148
Hawthorne effects, 147–148
infusion, 245, 246–251
Hawthorne effects, 147–148
infusion, 245, 246–251
objectives and activities, 133
ROI (Return on Investment), 145–147
security requirements, 176
storing and handling data, 85
Measurement and Analysis Process Area,
78, 85, 175
Life Cycle Processes for Very Small Enterprises (VSE) working group, 221
Live by your wits, learn basic skills, 112–113
LOC (Lines of Code) per hour measure, 147

M
M&A (Measurement and Analysis) Process Area, 50, 132
Making the Software Case (Reifer), 34
Management, 51–53
Management Steering Group, 170
Managerial tool measurement, 73
Managing appraisal life cycle, 30–31
Manufacturing process improvement, 3
Market share, increasing, 73
Mastering Process Improvement, 152, 167, 169
Materials, 48
Maturity Level 1, 55, 56
Maturity Level 2 Generic Practices, 59
Maturity Level 3 Process Areas, 59
Maturity Levels, 54, 56
goals, 54, 135–136
increasing, 59
Maturity models, popularity of, 11
MBTI (Myers-Briggs Type Indicator), 111, 202
Measurable, 228–229
Measureable goals, 134
Measurement, 32, 73
adoption progress, 245
asking for wrong data, 176
causality, 145
CMMI, 52
data collection procedures and tools, 176
diffusion, 245, 251–258
facts shown by, 84
filtering and synthesis requirements, 176
function points, 147–148
Hawthorne effects, 147–148
infusion, 245, 246–251
objectives and activities, 133
ROI (Return on Investment), 145–147
security requirements, 176
storing and handling data, 85
Measurement and Analysis Process Area,
Measurement system/repository, 175–177

Measuring
goals, 145
progress through diffusion and infusion measures, 148
success, 144–148

Mental and emotional strength, 110

Methods, experimenting with, 18

Middle-management black hole, 30

Mini CMMI, 230

mini-appraisal, 239

Models
aspects of organization supported by, 74
informal appraisal, 154–155
mapping artifacts, 157–158
matching elements to problems, 75
organizational experiences with, 74
organizational factors historically affected by, 137–138
parts to try first, 75–77
project management, 38
randomly picking elements, 75
selecting for process improvement, 74–75
skilled support, 157
skills assumed by, 74
user support, 74

Monitoring deployment, 82

MoProSoft, 23

Multi-compliant frameworks, 24–26

Myers, Chuck, 103

NDIA (National Defense Industrial Association) Web site, 269

Needs and cost issues, 125

Never knowing what you experience, 210–211

New uses for existing objects, 109

Nominal assumptions table, 141–143

Normative clauses, 22

Notes, 81–82

OGC (Office of Government Commerce) document set, 23

OID (Organization Innovation and Deployment) Process Area, 49, 132, 163, 167, 191

Old Status Quo, 127

One-Hour Process Description method, 238–245

as-is or to-be processes, 238
basic workshop process, 242–245
candidate-roles list, 238
Champion, 239
critical success factors, 240
demo subprocess, 241–242
Engineering Process Lead, 239
entry criteria for, 242
Facilitator, 239
ground rules for process description, 243
identifying areas of process guidance, 238
identifying process architecture, 238
incorporating process guidance into process description, 244

mini-appraisal, 239
names for roles in organization, 241
Participants, 239
post workshop Facilitator tasks, 244–245
process architecture, 240–241
process description approach, 242
subject-matter experts, 238
workshop preparation, 240–242

OPD (Organization Process Definition) Process Area, 49, 163, 167, 170, 175, 188

Operations goals, 135

NASA Goddard Space Flight Center, 16
NASA Software Engineering Laboratory, 16
NASAGA (North American Simulation and Gaming Association), 262, 267
NASAGA (North American Stimulation and Gaming Association), 86
Navigational routing, 67
NDIA (National Defense Industrial Association), 267
NDIA CMMI User’s Conference (2004), 59
NDIA (National Defense Industrial Association) Events Web site, 163–164
improving effectiveness of day-to-day, 11
OPF (Organizational Process Focus) Process Area, 49, 120, 132–133, 163, 167
developing and sustaining team, 162–164
OPP (Organizational Process Performance) Process Area, 49, 163, 175
Organizational learning, 10
Organizational Scan, 152
Organizations
alignment with, 133
appraised against CMMI, 21–22
appraising processes, 30–31, 121
baseline of capability, 56
building and sustaining sponsorship, 30
business strategy, 137
communicating with and sustaining sponsorship, 120–122
cultural environment, 111
evaluating improvement practices, 121
historical data, 73
history, 138
larger and more diverse, 30
less turnover, 72
measuring and modeling, 18
names for roles, 241
pain points related to solution, 124
process improvement for all sizes, 12–13
reward system, 137
sizes and consultants, 197
skills, 138
sponsorship, 137
strengths and weaknesses, 56
structure, 138
understanding current state, 137–144
value living, 110–111
values, 138
work practices, 137
Orientation stage, 165
OT (Organizational Training) Process Area, 49, 163, 167, 197
developing and sustaining team, 162–164
Overall improvement effort, 120

allocating too much resources to design, 175
basis for making decisions, 171
central knowledge base, 171
change requests against process assets management, 174
content and application of process guidance consistency, 172
creating and evolving, 170–175
critical attributes, 172–175
easy navigation, 173
easy searching, 173
effective learning environment, 171
elements required to support movement of behaviors, 172
encouraging use of process assets, 174
increasing adherence to preferred processes, 172
increasing participation of staff, 172
information relevance, 173
insufficient/inappropriate training, 175
lack of participation, 175
large organizations, 172
mechanisms for sharing knowledge, 171
multiple versions stored together, 174
multiple views of information, 173
print-focused documents, 175
reducing, planning, implementation, and training time, 172
reducing cost of project startup, 172
reducing unnecessary duplication of process assets, 171
reduction in time needed for planning, 172
reinforcing process definition concepts, 173
restrictive write/delete access, 174
secure tracking of document status, 174
small organizations, 172
specific areas for lessons learned, 189
transparent tracking of document use, 174
version and configuration management of key assets, 172
well designed and effectively deployed, 172
widespread read access, 174
working definition, 171
Parsing complex experiences differently, 207, 210

P
Pain points, 124
PAL (Process Asset Library), 32, 85, 98, 100

Index

Partner Network, 163
PAs (Process Areas), 21
applying policies, 59
associating with product development life cycle, 77–78
Capability Level 0, 56
Capability Level 1, 56
Capability Level 2 Generic Goal, 55
Capability Levels, 55
capability rating, 57
choosing, 55
continuous representation, 55
dependencies, 59
engineering, 48
filtering, 76
Generic Practices and, 60
high maturity, 132
implementing practices, 135
improving capability, 21
matching projects with, 234
multiple projects for, 235
not meeting specific goals, 56
predetermined cluster of related, 54
predetermined set, 55
problems correctly mapped to, 76
Process Management, 49
profile chart, 54
Project Management, 49–50
set of findings and recommendations, 54
Specific Goals, 55, 57
Specific Practices and, 56, 157
staged appraisal, 56
staged representation, 55
Support, 50–51
supporting tasks, 62–64
Patterson-Conner Curve Adoption Stage, 253, 254, 255
PDCA (Plan-Do-Check-Act) cycle, 13
People, 5
affected by process change, 111
appropriate processes and, 6
issues in managing change, 199–202
parsing complex experiences differently, 207, 210
Peopleware (DeMarco and Lister), 202
Perceptions, 108
Performance baseline, 80
Personality typing, 111
Persuasion techniques, 122
Phased transition mechanisms, 251
PI (process improvement), 83
actively sponsoring, 30
additional approaches, 4
advantages and disadvantages of different-size efforts, 35–37
agile software development methods, 12–13
agility, xviii–xix
analysis, 82–84
capital-investment aspect, 31–32
CMMI (Capability Maturity Model Integration), 4
CMMI constellations, 220
CMMI guiding, 61–64
collateral activities supporting, 29
creativity, 109
decisions on, 71–72
developing and sustaining infrastructure, 31–32, 36
developing and sustaining mechanisms to perform, 112
driven by business value, 11–12
education events surrounding, 89
evaluating organizational improvement practices, 121
fear and panic, 108
figuring out place in decision cycle, 218
finding resources for, 218–219
history of, 3–4
imagination, 109
importance of, 29
infrastructure, 14, 161–162
initiatives maintaining orientation tracking effort and benefits, 107
integrating different related technologies, 221
intentional activity, 29
interoperable, 24–26
IPRC (International Process Research Consortium), 219–220
learning, 10–11
life cycle, xix
manager sponsorship, 30
manufacturing, 3
measurement and deployment infrastructure, 29
misperceptions, xviii
moving in direction toward, 218
pitfalls for initiatives, 39–40
project management skills and practices, 195–196
reasons for engaging in, 13
reasons to pursue, 71–72
recording, 113
resources for engaging, 14
risks, 103
selecting model for, 74–75
senior management supportive, 30
size-based advantages and disadvantages, 36
smaller organizations, xviii
software development, 3–4
SW-CMM (Capability Maturity Model for Software), 4
trying before buying, 65
underestimating tasks, 39
value for organizations, 12–13
PI (Process Improvement) case study
  Analyze stage, 97–98
  Commit stage, 98
  Decide stage, 93–96, 100–101
  PI Steering Group, 98
  Reflect stage, 99–100
  Try stage, 96–97
PI (Product Integration) Process Area, 48
PI Steering Group, 98
PIID templates, 157
PIIDs (Process Implementation Indicator Documents), 156–158
Pilot projects
  adoptability, 192
  finding and selecting for implementation, 191–197
  process and technology improvements, 192
  staffing, 195–197
  technical feasibility, 192
  understanding adoption population, 192–195
Pilot toolkit, 96
Piloting processes, 33
PIV (Pain-Impact-Vision Cycle), 123–125
Please Understand Me (Keirsey and Bates), 111
PMC (Project Monitoring and Control)
  Process Area, 50
Points-of-interest view, 66–67
Policies, 52
  applying to Process Areas, 59
  building and sustaining sponsorship, 30
Polo, Marco, xx
Post-iteration analysis, 18
Post-mortem, 86
PP (Project Planning) Process Area, 50
PPQA (Process and Product Quality Assurance) Process Area, 51
Practices
  attempting reasonable implementation, 58
  deploying, 84–85
  identifying risks, 73
  participants with useful perspective, 76
Predictable schedules, 72
Presson, Shawn, 87
Principle information, 183
Prioritizing ideas, 262
PRM (Process Reference Model), 22–23
Problems, 82
  analyzing past, 132
  applying SW-CMM to, 4
  correctly mapped to Process Areas, 76
  identifying top five, 99
  kinds solved by model, 76
  matching model elements to, 75
  new uses for existing objects, 109
  using things at hand to solve, 109
Problem-solving strategies, 122–123
Procedure information, 183
Procedures and Information Mapping, 98
Proceedings of the 1st International Researcher’s Workshop on Process Improvement in Small Settings, 221
Process asset, 171
Process Champion, 249
Process Change Management method, 152
Process description
  ground rules for, 243
  incorporating process guidance into, 244
One-Hour Process Description method, 238–245
problems adapting, 188
  technique, 96
Process Developer, 250
Process diagraming
  Rummler-Brache diagrams, 186
  swim-lane diagrams, 186
  techniques, 186–188
Process guidance
  Acting like natives, 112
  combining types, 182
  developing, 181–188
  difficulty finding information in, 182
  future reference on doing something, 181
  inconsistent, 182
  incorporating into process description, 244
Information Mapping, 182–186
Process diagraming techniques, 186–188
  purpose of, 181
  roles and skill levels, 182
  shared model for organizing, 182
  too much or too little, 182
Process improvement consultants, 196
Process improvement life cycles, 13, 32
  agile methods, 18
  DLI (Decision-based Lifecycle for Improvement), 19
  focusing on activities needed to accomplish, 67
  IDEAL model, 13–15
  QIP (Quality Improvement Paradigm), 16–18
  Six Sigma, 15
Process information, 184
Process Management Process Areas, 49
Process Owner, 249
Processes, 6
  activities for improvements, 14
  adopting too quickly, 39
  appraising, 121
  appropriate, 5–6
  as-is, 111
  building and sustaining sponsorship, 30
  capturing and sharing knowledge, 9–10
  changing, 32
  content, 51–52
  controlled documentation, 52
  creating and documenting, 80
  defining and following, 52
  defining requirements for, 32
  definition, 173, 186
  deploying, 32–34, 37
  descriptions and transition mechanisms, 85
  designing, 33
  detecting variation in performance, 53
  double-loop learning, 86
  effective, 6
  ensuring defined followed, 51–52
  Environment, 5
  explicitly defining and tailoring qualities, 18
  fitting task, 9
  as foreign element, 187
  gaps between intended state and current processes, 14
  identifying architecture, 238
  identifying risks, 81
  implementing, 33
  improvable infrastructure, 52
  improving, 9–10
  improving and evaluating content, 48
  improving capability, 52–53
  improving performance, 48
  infeasible contexts, 187
  interaction, 12
  learning about, 9
  learning from, 14
  managing appraisal life cycle, 30–31
  mapping to standards, 25
  measure of variation, 15
  monitoring against historical data, 53
  multiple versions of, 186–187
  objectively evaluating, 53
  One-Hour Process Description method, 240–241
  people and, 5, 111
  piloting, 33
  planning, 52
  policy, 52
  problems adoption, 39
  product development, 33
  quick application of changes and feedback, 18
  reference model choices, 20–26
  related critical success factors, 52
  relationships between qualities, 18
  resources for, 52
  role in business, 5–7
roles and deployment, 246–247
standardization, 6, 53, 187–188
technical feasibility, 192
technology, 5
testing, 33, 192
understanding, 18, 32
unifying standards with, 24
variations in communications of, 187
well-thought-out, 5–6
work aids to execute, 81
Process-influence triangle, 105
Product and Process QA Process Area, 78
Product development
life cycle and associating Process Areas, 77–78
as primary focus, 46–47
versus process deployment, 33
Product Development constellation, 47, 220
Product Integration Process Area, 78, 180–181
Product Testing/Verification stage, 78
Product versus process development phases, 180
Productivity, changing measure for, 147
Products
controlled documentation, 52
meeting quality specifications, 52
relationships between qualities, 18
understanding, 18
version control, 12
Progress
definition of goals and mechanisms used to measure, 34
impacting, 104–105
measurement framework, 107
measures, 148
no baseline data to compare, 40
Project management
above-the-line planning, 38–39
below-the-line planning, 38–39
different, 38
finding and recruiting staff, 196
focus on, 72
improving, 95
issues, 38–39
language, 94
literature available on, 38
models and, 38
skills and practices, 195–196
support and, 55
Project Management Body of Knowledge Guide, 12
Project Management Process Areas, 49–50
Project Monitoring & Control Process Area, 78
Project Planning Process Area, 78
Project Retrospectives: A Handbook for Team Reviews (Kerth), 87
Project Support policy, 59
Projects, 77, 79
appropriate for Process Areas, 76
buy-in, 79
feeding back information for control, 18
good candidates for testing new processes, 76
hijacking, 107
how well plan was followed, 83
initial and longer-term objectives, 46
integration failure, 51
keeping sponsor interest, 119
matching with PAs, 234
measuring and modeling, 18
multiple for each PA, 235
performing consistently on projects, 73
recommendations for future improvements, 17
reflecting risks that identified, 79–80
resolving issues formally and early, 52
retrospective techniques, 86–87, 106
short life cycle, 235
Proposal/Initial Planning stage, 78
PSM (Practical System and Software Measurement) conference, 266
PSM (Practical System and Software Measurement) materials, 177
PSM Web site, 177
PSQT (Practical Software Quality and Testing) conferences, 266

Q
QIP (Quality Improvement Paradigm), 16–18, 20
QPM (Quantitative Project Management) Process Area, 50, 175
Quality paradigm, 72
Quality products and services, 72–73
Quality Software Management Volume 4: Anticipating Change (Weinberg), 127
Quality-control standards, 22
Quality-management standards, 22
Quality-management system requirements, 22
Quantitative learning, 10

R
Radar chart, 138
RD (Requirements Development) Process Area, 48, 78, 180
Readiness/fit analysis, 105–106
Realistic, 229
Realistic/relevant goals, 134
Reference models, 31
advisors, 77
arbiter for disagreements, 20
big picture and, 20
choices, 20–26
CMMI, 21–22
COBIT (Control Objectives for Information and related Technology), 24
critical success factors for most common processes, 20
creating, 20
critical success factors for most common processes, 20
forgoing, 20
interoperable process improvement, 24–26
ISO 9000 series, 22
ISO 15504/12207/15288, 22–23
ITIL (Information Technology Infrastructure Library), 23
supported by training, consulting, and ancillary literature, 20
Reflect stage, 69–70, 86–88, 106
PI case study, 99–100
Reflection
project retrospective techniques, 86–87
on what went well, 18
Reifer, Don, 146
Relevance, 229
Information Mapping, 185
Relevant stakeholders, 121
Remember where you are, 106–107
Renewal stage, 166
Repeatability, 3–4
Repository of artifacts, 99
REQM (Requirements Management) Process Area, 48, 59, 78, 180, 241
Requirements Elicitation stage, 78
Requirements for processes, 32
Resources
building and sustaining sponsorship, 30
CBA (CMMI-based Business Analysis), 230–235
conferences, 265–257
CSI (Crime Scene Investigation) technique and Chaos Cocktail Party, 262–264
finding for process improvement, 218–219
infusion and diffusion measurement, 245–261
journals, magazines and e-zines, 270
One-Hour Process Description method, 238–245
RFA (Readiness and Fit Analysis), 235–237
setting SMART goals, 228–230
tools and techniques, 227–271
Web sites, 267–270
Results of SEI Independent Research and Development Projects and Report on Emerging Technologies and Technology Trends (SEI), 15
Review Status with Higher Level Management Generic Practice, 121–122
Reward System, 137, 142
Reward system-related statements, 140
RFA (Readiness and Fit Analysis), 73, 96, 137
bar-chart version, 138, 139
identification of conditions or risks, 138
list of risks to mitigate, 138
performing, 235–237
radar chart, 138, 140
risk analysis, 143
risk-identification part, 138, 144
summary profile, 138
Technology Assumptions Table, 73
Risk Management Process Area, 78, 191
Risks, 125
affecting ideas, 79–80, 144
analysis and RFA (Readiness and Fit Analysis), 143
fewer, 80
identifying, 73
less-severe, 80
minimizing, 80
process improvement, 103
watching for, 82
Rogers, Everett, 192, 255
ROI (Return on Investment), 145–147, 255
improving processes, 12
Root causes, 262
Root-cause analysis and CSI (Crime Scene Investigation) technique, 86–87
Rule-based searches, 173
Rummler-Brache diagrams, 186

SCAMPI (Standard CMMI Appraisal Method for Process Improvement), 57, 152
Lead Appraiser, 163
SCAMPI A appraisal, 158
SCAMPI C level assessment, 96
SCAMPI Distilled (Ahern et al), 151
SCAMPI Web site, 268
Schaeffer, Mark, 46
Scrum, xviii
SE2 (South East Software Engineering) conference, 266
Secrets of Consulting (Weinberg), 202
Security Management document set, 23
SEI (Software Engineering Institute), 21, 46, 219, 267
case-study information, 113
SEPM (Software Engineering Process Management) program, 221
value networks, 203
SEI model for consultants, 198–199
SEI Partner Network, 163, 167, 197, 219
SEI Partner Network Directory Web site, 268
SEI Web site, 177, 220, 268
CMMI adoption pages, 13
“CMMI Today” folder, 21
information on phases of IDEAL, 14
Proceedings of the 1st International Researcher’s Workshop on Process Improvement in Small Settings, 221
SEIR (Software Engineering Information Repository), 163–164
Senior leadership team, 167
Senior management
endorsement by, 40
no active commitment or engagement, 40
shorter expression of capability, 56
supportive of process improvement, 30
SEPG (Software Engineering Process Group) conference, 15, 169, 219
SEPG (System and Software Engineering Process Group) conferences, 265–266
SEPM (Software Engineering Process Management) program, 221
Service Delivery document set, 23
Service Support document set, 23
Services constellation, 220

S

SAE (Society of Automotive Engineers), 12
Sales concepts
building and sustaining support, 122–127
Buyer’s Risk Cycle, 125–127
PIV (Pain-Impact-Vision Cycle), 123–125
Sales strategies and problem-solving strategies, 122–123
Satir, Virginia, 127
Satir Change Model, 127, 199–202
Acting like natives, 112
Adoption Commitment Curve and, 206
Chaos block, 200, 201
flow chart, 200
Integration & Status stages, 201
Integration and Practice stage, 82
New Status Quo, 200
Old Status Quo, 127, 200
Remember where you are, 107
size up situation, 105
timing of cycle, 127
Transforming idea, 200, 201
Vanquish fear and panic, 108
Satir Communication Model, 202
Index

Shared experiences, 210
Shared knowledge, 10
Shared vision, 133–136
Shewhart cycle, 13
Single-loop learning, 86
Situation, sizing up, 104–105
Sivy, Jeannine, 15
Six Sigma, 4, 15, 20
Six Sigma Web site, 269
Sizing up situation, 104–105
Skill and knowledge requirements, 180
Skills, 112, 138, 143
Skills-related statements, 141
Small businesses and organizations
helping, xviii
process improvement, 12
Smaller organizations
PAL (Process Asset Library), 172
process improvement, xviii
SMART goals, 134
achievable/attainable, 229
customer-quadrant business goals, 228
customer-quadrant improvement goals, 228
for first DLI cycle, 136
Maturity Level goals, 135–136
measurable, 228–229
realistic, 229
relevance, 229
setting, 228–230
Specific, 228
time-basis, 229
Software
development and process improvement, 3–4
ISO standards, 22–23
organizations improving operational
effectiveness, 11
Software Development magazine, 270
Software Engineering Division of the U.S.
Army Research, Development, and
Engineering Command, 266
Software Engineering Information Reposi-
tory Web site, 268
Software Engineering Institute (Carnegie
Mellon University), 4, 13
Software Engineering Lab at NASA Web
site, 269–270
Software Engineering Laboratory at NASA
Web site, 177
Software Engineering Process Group Guide, 169
Software Guru Conference, 266
Software industry and improving perform-
ance, 21–22
Software Measurement Process, 177
Software process improvement, 4
Software process improvement model, 46
Software Technology Support Center (Hill
Air Force Base), 267
Solution, 125
Solution Selling, 122–123
Solve the problem goals, 136
Source Lines of Code measure, 147
Specific, 228
Specific goals, 55–57, 131, 134
Specific Practices associated with Specific
Goals, 57
SPIN (Software Process Improvement Net-
work) group, 95
SPIN resources, 219
SPIP journal, 270
Sponsors, 107
being, 127–129
business impact of pain areas, 124
confidence investment is reaping benefits,
121
keeping interest in project, 119
moving from business-impact realization
to Vision, 124–125
moving from latent pain to acute pain,
124
progress being made toward objectives,
120
progress consistent with business goals,
120
providing right resources, 119
right decision to become, 120
seeking, 122–127
working as team, 164
Sponsorship, 142
building and sustaining, 30, 35
communicating with and sustaining,
120–122
developing and sustaining, 119
organization leadership changing, 119
requirements, 180
size-based advantages and disadvantages, 35
Sponsorship-related statements, 139
SQP (Software Quality Professional) magazine, 270
SSTC (Software Technology Support Center), 270
SSTC (Systems and Software Technology Conference), 267
Staged appraisal Process Areas, 56
Staged representation, 53–57
  Process Areas, 55
Stages
  adoption of new set of practices or new technology, 68
  learning behavior, 211
Stakeholders
  communications, 207–215
  coordination and collaboration of project with, 121–122
Standard processes, 6, 187–188
Standardization, 52
“Standardization as an Adoption Enabler for Project Management Practice” (Garcia), 5
Standardizing processes, 53
Standards, 24–26
Standards provider, 23
Statements, 139–141
Sticky Minds e-zine, 270
Stockholders, value for, 72
Strategic learning, 10
Strategic Planning references, 134
Strategy, 142
Strategy-related statements, 139
Stress and change, 105
Structure, 143
Structure information, 184
Structure-related statements, 141
Subject-matter experts, 238
Success criteria, 96, 132–136
Successes
  easier to quit than go forward, 110
  evaluating, 18
  learning from, 188
  measuring, 144–148
  mental and emotional strength, 110
  packaging and reusing, 18
  paying attention to, 107
Summary profile, 138
Supplier Agreement Management Process Area, 197
Support, 107
Support Process Areas, 50–51
SURVIVAL, 103
  Acting like natives, 111–112
  Improvise, 109
  Live by your wits, learn basic skills, 112–113
  remember where you are, 106–107
  size up situation, 104–105
  undue haste makes waste, 105–106
  Value living, 110–111
  vanquish fear and panic, 107–108
Survival Guide, 98
SW Guru magazine, 270
SW-CMM (Capability Maturity Model for Software), 4
Swim-lane diagrams, 186, 188
System development and ISO standards, 22–23
Systematic Process Improvement Using ISO 9001:2000 and CMMI (Mutafelija and Stromberg), 22, 75
Systems and Software Consortium, 24
Systems engineering process improvement model, 46
System/Software Engineering Process Group conference, 164

T
Targets for profiles, 253
Task/CMMI cross reference, 62–64
Tasks
  above-the-line planning, 38–39
  approaches to, 61
  below-the-line planning, 38–39
  helpful individuals or groups, 195
  importance of, 39
  judging completion, 39
  organizing, 61
  process fitting, 9
  repeatability, 3–4
  underestimating, 39
Index

TBA-IPI Improvise, 109
Teaching-to-the-test strategy, 34
Team Leader’s Guide, 167
Team Performance model, 79, 167
Team-building, 111
Teams, 77, 79
  buy-in, 79
  developing, 164–167
  developing and sustaining, 162–164
  Drexler-Sibbett Team Performance Model, 164
  external consultants, 169–170
  In-process evaluations, 189
  internal focal point, 169
  internal part-time improvement teams, 169–170
  internal PI group, 169–170
  Joiner and Associations high-performance team approach, 164
MBTI (Myers-Briggs Type Indicator), 202
  no ongoing infrastructure, 168
  organization, 167–170
  part time members, 168–169
  permanent consultant to, 99
  senior leadership, 167
  senior-management sponsor, 168–169
  senior-management steering group, 169–170
  single focal point for improvement, 168–169
  skills, 163
  staffing, 167–170
  training services, 163–164
Technical activities
  guidance, 51
  support processes, 51–52
Technical feasibility pilots, 192
Techniques, experimenting with, 18
Technologies, 5–6
  identifying risks, 73
Technology adoption
  effective use of approaches, 202–203
  measurement, 106–107
  methods, 80
Technology Assumptions Table, 73, 141
Testing processes, 33
Throughout Life Cycle stage, 78
Time and cost constraints, 180
Time-based/tangible goals, 134
Time-basis, 229
To-be processes, 238, 241
Toolkit Materials Web site, 269
Tools, taking stock of, 105
Tools and techniques resources, 227–271
TQM (Total Quality Management), 4
  force-field diagram, 109
  not requiring reference model, 20
Trained facilitator, 81
Training, 52, 215
  detaching-stage people, 211
  fluent-stage people, 211
  following-stage people, 211
  improvement participants, 112
  materials, 32
  preventing fear and panic, 108
  searching for services, 163–164
  shortening time for, 181
  users on new guidance, 81–82
Transforming idea, 128
Transition mechanisms, 85, 211
  categorized by Adoption Commitment Curve categories, 212–214
  communication mechanisms, 211
  deploying changes, 205–206
  gaps, 98
  implementation mechanisms, 211–212
  training, 215
Transparent process architecture, 24–26
TransPlant, 203
The Travels of Marco Polo, xx, 42, 90, 116, 224
Trial Use stage, 69, 213, 252, 257
  diffusion events, 259
Trials, 83–84
Trust Building stage, 165
Truth and breaking panic cycle, 108
Try before you buy, 65
Try stage, 69–70
  PI case study, 96–97
TS (Technical Solution) Process Area, 48, 78, 180–181
TSP (Team Software Process), 186
Type Talk at Work, 202
U
Understanding stage, 69, 212, 215, 252, 255, 257
diffusion events, 258–259
including restructuring and shared experiences, 210
Understanding Variation (Wheeler), 176
Undue haste makes waste, 105–106
Unified Process Improvement Architecture, 24–26
University of Maryland, 16
U.S. Army Survival Manual, 103–104
U.S. Department of Defense, 4, 21
U.S. Office of the Secretary of Defense, 46
User Acceptance Testing/Release stage, 78
User Doer, 250
User Manager, 249
User-defined criteria, 173
Users, training on new guidance, 81–82

V
VAL (Validation) Process Area, 48
Validation, 180–181
Validation practices, 51
Validation Process Area, 78
Value living, 110–111
Value networks, 81, 203–205
Values, 138, 142
Values-related statements, 140
Vanquish fear and panic, 107–108
VER (Verification) Process Area, 48
Verification Process Area, 51, 78, 180–181
Version control, 60
Versions, managing, 51
Visibly responsive attribute, 228

W
Weapons, taking stock of, 105
Web sites, 267–270
Weinberg, Jerry, 202
What worked or didn’t work, 83
Work Practices, 137, 142

X
XYZ Process, implementing new practices for, 135

Y
YAMMs (Yet Another Maturity Model), 4